

COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS
JULY 1945

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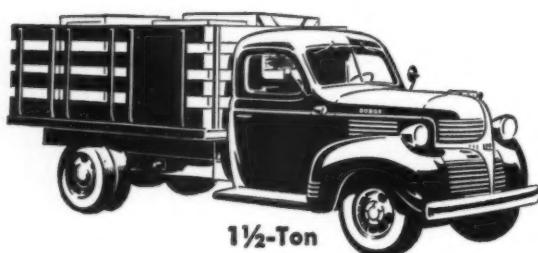
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COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

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UP & DOWN

20,000* times in
3 years of use
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HOIST, needed 46 cent packing replacement. Otherwise o.k.

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*Estimated by owner-driver, name upon request. This number of dumps represents an average rather than a record high as the truck pictured was taken purely by chance.

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"GREAT POWER AND EASY HANDLING"

HERE's still another example of ample truck capacity and power as recommended by International Harvester—the performance of an International KR-11 in the service of Schmidt Truck Lines, with terminals at Duluth, Minnesota, and Fargo, North Dakota.

"This has been a very satisfactory truck," writes Adolph Muering of the Schmidt Truck Lines, "since we haul a greater load in less time."

"We have this unit pulling a 28-foot trailer carrying about 36,000 pounds. It operates between Duluth and Fargo, averaging about 5½ miles per gallon, and a quart of oil every 500 miles. It has run more than 32,000 miles, and we have had no trouble with it. *Our drivers like its great power and easy handling.* We expect to buy another KR-11 as soon as one is available."

Internationals are rugged trucks—so dependable in performance that in the 10 years before

the war more heavy-duty Internationals were sold than any other make. And Internationals are backed by the nation's largest company-owned truck service organization. But International goes a step further. It recommends trucks of ample capacity and power. So get International's recommendation—a recommendation that means *economy, performance and long, satisfactory service.*

INTERNATIONAL HARVESTER COMPANY



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Chicago 1, Illinois

NEW TRUCKS: The government has authorized the manufacture of a limited quantity of light, medium and heavy-duty International Trucks for civilian hauling. But many operators will have to wait for trucks. Maintenance of existing vehicles is just as important today as before V-E Day. Therefore, be sure your trucks get top maintenance and service at International Truck Dealers and Branches. And if you qualify for a new truck, see your International Dealer or Branch for valuable help in making your application.

INTERNATIONAL HARVESTER COMPANY

INTERNATIONAL Trucks

WASHINGTON RUNAROUND



Military Cutbacks Severe . . . 440,000 Trucks, 27,500 Trailers Authorized in WPB as Ceiling for Last Half of 1945 . . . 250,000 Truck Ceiling Set for First Quarter of 1946 . . . Change in Truck Rationing . . . ODT Demobilization Details . . . Orders Will be Modified . . . Etc.

Military Cutbacks Severe

This department is bursting with good news. It all stems from severe military cutbacks during the month of June. The cutbacks are so severe, in fact, that there is fear of much unemployment during the last quarter of this year unless production of civilian goods is stimulated. The War Production Board is providing that stimulus. In the case of automotive products, it takes the form of increased production of trucks, trailers and replacement parts during the last half of this year.

440,000 Trucks Authorized

When the military cutbacks hit the steel mills, so much steel will become available for the production of civilian goods that the WPB Requirements Committee during the latter part of June felt warranted in authorizing a production of 440,000 trucks and 27,500 trailers during the last six months of 1945 for domestic and export civilian consumption. Since the ODT, domestic civilian, share of commercial vehicle production runs slightly in excess of 90 per cent, this means that in excess of 396,000 trucks and 24,750 trailers are in the program for U. S. civilian operators. Adding the estimated 90,000 trucks produced during the first six months makes a grand total of 486,000 for civilians for the year.

95% Light & Medium

Of the 440,000 trucks, materials for the production of 123,000 will enjoy an AA1 priority; 188,700 will have an AA2 priority, and the remainder will be unrated. About 95 per cent, evenly divided, of the 440,000 trucks will be of light and medium capacity. Using the average production during the period 1936 to 1940 as a base the 440,000 production is at the rate of 131 per cent.

250,000 for 1st Q. 1946

During 1946 there will be no production programming in line with WPB policy. But just to give manufacturers something on which to plan, it is understood that WPB will give the industry a ceiling of 250,000 commercial trucks and 15,000 trailers for the first quarter.

Ceiling may be Lifted

The 440,000 truck program for the last half of this year is a ceiling figure. There is a good reason for the ceiling. There are nine products that enjoy a preferential status with WPB. They are trucks, trailers, passenger cars, civilian radio tubes, refrigerators, electric ranges, other types of ranges, metal furniture and wood furniture. The belief is that military cutbacks will make enough steel available to provide the makers of these products with materials up

to the limit of their capacity, and leave enough for producers of other types of civilian goods requiring steel. But WPB cannot be absolutely certain of this, and so as a hedge it has resorted to production ceilings for the last half of this year in the case of all nine preferred products. If enough steel becomes available to warrant lifting the ceilings, that will be done.

Batteries at 100% Rate

The military cutbacks also made more lead available. ODT promptly asked that enough lead be allotted for civilian production to provide 15 per cent more batteries in the third quarter of this year than were built in the same period of 1944. WPB compromised the 115 per cent request by arranging for a production slightly over 100 per cent. In terms of batteries, this means 4,800,000 batteries for replacement purposes in the third quarter, plus an additional 250,000 batteries for new civilian automotive vehicles. Battery production in the first half of the year totaled 9,200,000 units. Adding the third quarter program makes a total of 14,000,000 for nine months. This leaves 5,250,000 to be produced in the fourth quarter if ODT's original request for 19,250,000 replacement batteries for the year is to be met. ODT has asked that if an additional supply of lead becomes available during the last half of the year it be given to civilians up to the limit of ODT's original request.

(TURN TO PAGE 172, PLEASE)



LETTERS FROM

Should Truck Rationing Be Continued for the Benefit of "Essential" Operators?

★ THE LETTER

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

I HAVE read with interest the "Washington Runaround" section of the May Journal * * *

Recognizing the importance of the COMMERCIAL CAR JOURNAL as a major influence in formulating opinions among automotive fleet maintenance and operating personnel, prompts me to call to your attention certain statements in your article concerning the ODT, Highway Transport Department. Demobilizing Plan which appears to be somewhat misleading, not from the standpoint of factual planning information but from the time schedule estimate. You state in bold face type, "Washout in six months probable." Such a statement would be welcome news if it could be justified. * * *

Confronted as we are at this time with the national transportation plant in a general rundown and deteriorated condition, which by no stretch of the imagination could be rehabilitated in any short period of time, and with the growing need for replacement to slow wearing and non-functional parts which are not available and will not be available for some time, leads me to observe that many functions of ODT are vitally necessary not only for the present and through the completion of the Pacific campaign, but for a period of time thereafter until the automotive industry becomes reasonably stabilized.

Apparently many functions performed by the Highway Transport Department of ODT are not generally understood and I refer specifically to the Maintenance Section who are continuously carrying the operators' fight into and through other governmental agencies to obtain for us the proper consideration for our needs. Should the activity of the Maintenance Section meet an untimely end, serious hardships could be anticipated for many essential operators. You recognize there is not enough of anything required for full automotive operation to go around and satisfy all

operators; therefore, if the bars are let down too quickly, non-essential operations would withdraw from the available stockpile critical items, depriving essential operators. * * *

The truck rationing program should be analyzed along the same lines of reasoning and should be continued to function as long as the need for same exists. You state that six months after V-E Day * * * civilian truck production (will be) at a rate in excess of 200,000 trucks annually and have premised your conclusion on the theory that, because ODT is not geared up to handle trucks in excess of this amount, they will not be expanded — therefore, abandoned. To which I can only comment as above, that if such a policy is followed there could develop a very unfortunate situation.

You recognize, and I am sure those governmental agencies responsible for material releases and rationing of trucks recognize, that through the period March, 1942, to December, 1945, there would have been built and sold over 2,200,000 motor trucks * * * had industry been able to build at the normal rate for domestic consumption. As a matter of fact, the total number actually available and approved for production during this period amounted to approximately 400,000 units, which, as you will note, at the end of this year leaves a potential need in excess of 1,800,000 motor trucks.

Now is it your thinking that with the limited production of 200,000 or 300,000 trucks in 1946, with a potential need for an excess of 1,000,000, that truck rationing probably will be abandoned six months after V-E Day?

I am hopeful that you will give this subject further consideration and, if possible, present an analysis clarifying the points that have been raised in the hope that operators who read the JOURNAL closely will be in a better position to formulate their operating policies on a realistic basis.

F. L. FAULKNER,
Mgr., Automotive Dept.,
Armour & Co., Chicago.
(Gen. Chmn. ODT Region 6
Advisory Committee)

★ COMMENT

THERE has been an unavoidable lapse of time between the writing of this letter by Reader Faulkner and its publication. Some of the questions he raised were answered in the "Washington Runaround" in the June issue, and will not be repeated here. But there is a timeliness in his emphasis on taking care of so-called "essential" operators, and we shall concern ourselves solely with this matter. It is the nub of his argument favoring continuation of ODT regulation and truck rationing "through the completion of the Pacific campaign" and "for a period of time thereafter."

It was no simple matter deciding which truck operation was "essential" when contribution to the war effort was the primary standard of judgment. It would be an even more difficult matter deciding which truck operation is "essential" in a period of partial reconversion, such as we are now entering. If truck rationing were to be continued, a redefining of "essentiality," in line with reconversion objectives, certainly would have to be undertaken.

If commercial truck production in 1946 reaches and exceeds an annual rate of 500,000, as there is every indication that it will, it is doubtful if the public would permit a state of affairs which gave a select group of "essential" operators the privilege of taking care of all their new truck needs while all other operators did without. These other operators are just as vitally involved in the task of reconversion. Perhaps the nation is even more dependent upon them. The war squeezed them; reconversion should allow them to expand and in this way to take up the unemployment caused by military cutbacks.

READERS

Admittedly truck production from 1942 to date has been meagre. But production statistics do not provide the complete picture. From March, 1942, when truck rationing began, until Dec. 31, 1944, a total of 219,394 trucks were rationed to civilians. To simplify the discussion, let us grant that this figure included all of the trucks produced in that same period. Then let us add ODT's share of 1945 production—187,467, and also 80 per cent or 150,960 (a conservative estimate) of the 188,700 trucks added to the truck program for the last half of 1945, which manufacturers say they can produce. These three figures add up to 556,957. Since 1945 production will be rationed on the same basis that has prevailed since rationing began, it will mean that by the end of 1945 "essential" operators will have had the opportunity of replacing and adding 556,957 trucks while "non-essential" operators were compelled to do with what they had.

Continuing this analysis a little further we come up with some interesting findings. Let us grant the theoretical figure of 2,200,000 trucks as being the civilian need for replacement purposes during the four-year period 1942

to 1945. But let us remember that 40 per cent of all trucks produced prewar were "light trucks," that is, trucks under 1½-ton rated capacity. Subtract this 40 per cent, or 880,000 from 2,200,000 and we have left 1,320,000. This is the theoretical need for all other sizes.

Next let us take the combined rationing and production figure of 556,957 trucks and subject it to similar treatment. Of this total 154,224 are light trucks. Subtraction leaves us with 402,733 trucks in the larger sizes.

Now compare the figure of 1,320,000 with 402,733 and you find that if there had been no classification of operators into "essential" and "non-essential" groups, almost one-third of civilian replacement needs in the large sizes would be satisfied by the end of 1945.

But more important to the matter under consideration is the relationship of 402,733 trucks to the replacement needs of "essential" operators who meet WPB and ODT rules on eligibility. To put the chicken's neck right on the block and bring down the hatchet, what portion of the 1,320,000 replacement need in the larger sizes represents the needs of "essential" operators? Would 50 per cent be a fair figure? It could be

40 per cent. It certainly could not be more than 60 per cent. Let's consider all three possibilities.

At the 50 per cent rate, replacement needs of "essential" operators for the four-year period would be 660,000 trucks. Since 402,733 will have been allocated to them in that same period, it will mean that 61 per cent of the need will have been met.

At the 40 per cent rate, the replacement need is 528,000 trucks and satisfaction will be 76.2 per cent.

At the 60 per cent rate, the replacement need is 782,000 trucks and satisfaction 51.5 per cent.

Under these circumstances, should the special privileges of "essential" carriers be perpetuated throughout and beyond all hostilities?

The figures indicate that by the end of the year, when partial reconversion will be on in earnest, "essential" operators will have a considerable advantage over their "non-essential" brethren in the satisfaction of replacement needs. There can be no doubt that "non-essential" operators will be more in need of trucks and of consideration than "essential" operators. Doesn't this weight the argument in favor of eliminating truck rationing controls beginning with 1946 so as to give all operators an equally fair crack at available production?

What do readers think?

READERS . . .

What do you think of this subject?

Put your views right here where ODT can see them.

State whether you are connected with an "essential" or "non-essential" operation.

Address, The Editor, Commercial Car Journal, Philadelphia 39, Pa.



Should Pipe Extensions Be Used on Wrenches?

★ THE LETTER

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

ONE of the old time proven fundamentals of safe shop practice is to never use a pipe extension on a wrench. This taboo practice has resulted in many slips, strains and hernias with the resulting suffering and lost man hours.

It was with considerable surprise therefore that I find that this unsafe practice is not only recommended in the May issue of the Journal, "U THERE", page 42 but an actual table of suggested pipe lengths is given for different size bolts.

No such makeshift practices are ever allowed in our shop. Tools of the proper size and length, designed for the job are provided. The result of such training in good shop practice is that we have

not had a lost time accident in over three years.

I am afraid that this article will prove a dis-service to the cause of Industrial Accident Prevention.

GEORGE M. MILLER,
Superintendent of Transportation,
Safety Director, The Louisiana
Coca-Cola Bottling Co., Ltd.,
New Orleans.

★ COMMENT

(Editor's Note: The following comment was prepared by the author of the article to which Mr. Miller refers.)

MR. MILLER brings out an excellent point regarding "safety" when
(TURN TO PAGE 157, PLEASE)

GASOLINES WILL BE BETTER THAN OCTANE NUMBERS INDICATE

Determining what degree of improvement and when the change from wartime to post-war quality in gasolines can be expected, is no easy problem. But it was undertaken by the author, who is in a position that qualifies him to speak with authority. Prepared at the suggestion of COMMERCIAL CAR JOURNAL, this article covers the realities of gasoline production and presents a down-to-earth prediction.

There will be an increase in octane num-

bers, but the author points out that octane number, as such, will not altogether be a true indication of antiknock quality.

Using their new equipment and processes, the oil refiners will be able to control product type much better than before the war. This, combined with an increased knowledge of engine requirements, will allow the petroleum industry to produce gasoline blends which will perform considerably better than that indicated by laboratory octane number.

The Antiknock Quality of POSTWAR GASOLINES

by T. H. RISK

Assistant Director, Refinery Division, Ethyl Corp.

THREE is every reason to expect postwar gasolines to be superior products, especially with respect to antiknock quality, than similar pre-war gasolines. The main problem at this time is to determine what degree of improvement and when the change from wartime to postwar quality can be expected.

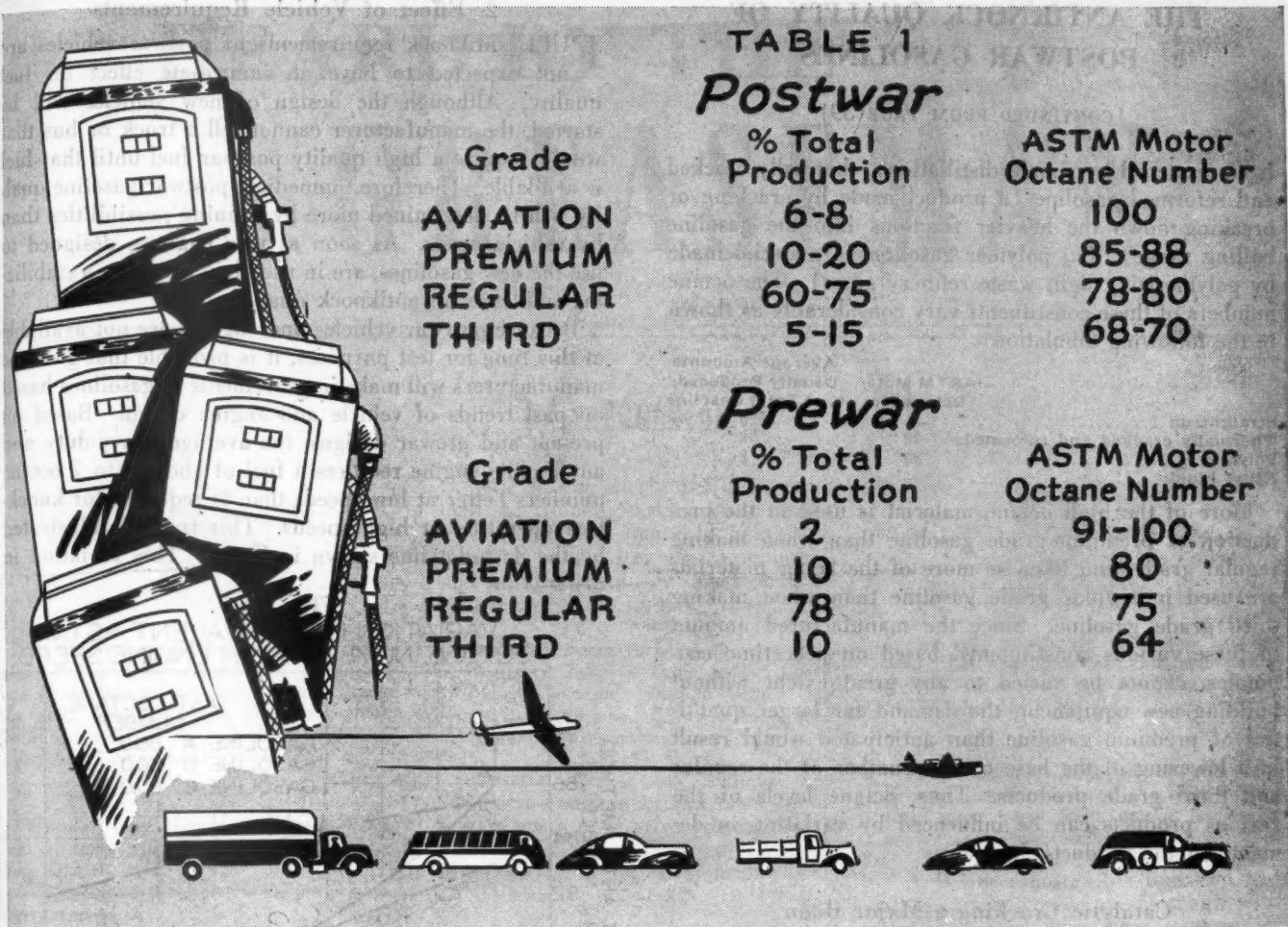
The remarkable increase in 100 octane aviation gasoline from about 840,000 gal. per day in 1941 to well over 21,000,000 gal. per day in 1944 may prompt over-optimistic speculation unless the ways and means of obtaining this high production are fully realized.

Prior to the war 100 octane aviation gasoline was a mixture of high octane straightrun, alkylate, and Ethyl Fluid. At that time the maximum concentration of tetraethyllead was arbitrarily limited to 3 cc. per gallon. However, in order to obtain the enormous quantities of high octane aviation gasoline required for military purposes, the supply was augmented not only by the construction of much new refinery equipment but also by the inclusion of materials not formerly used, such as repassed catalytically cracked gasoline, cumene, and increased quantities of tetraethyllead. Because of the allowable increase in tetraethyllead content, it was possible to include materials of lower antiknock quality. This allowed refiners to take some of the better blending stocks used in motor fuel for trucks and passenger cars, and to use them in aviation gasoline, with the result that the quality of the motor fuel was lowered. All of this was done with little regard for cost since it was essential that ever increasing quantities of aviation gasoline be made available to our Armed Forces.

Here is a prediction, covering all grades of considered opinion of the petroleum industry

Motor Fuel versus Aviation Gasoline

WHEN we consider the fact that peacetime motor fuel must be manufactured for less than half the price of wartime aviation gasoline and that the maximum tetraethyllead limit for motor fuels is 3 cc. per gal., it is obvious that all of the methods used in the production of wartime aviation gasoline are not practicable for the production of peacetime motor fuel. Aside from the fact that many constituents of aviation gasoline, such as alkylate, isopentane, and cumene, are normally too expensive to be considered as motor fuel constituents, there are manufacturing and use-requirement differences between aviation and motor gasolines that must be taken into account when manufacturing is conducted on a peacetime basis. It has been estimated that even with increased flying after the war aviation gasoline will amount to only 6 to 8 per cent of the total gasoline produced in this country based on a total of 1,600,000 bbls. per day. With this relatively low percentage of fuel



**fuel, based on a survey, and representing the
with all the many factors taken into account**

assigned to the aviation market, it will be possible for refiners to use special products not normally manufactured in large quantities, such as alkylate, cumene, and isopentane. These materials cannot at present be economically produced in large quantities and may represent only 1 to 6 per cent of the refinery gasoline output. On the other hand, large quantities of motor fuels are needed and, therefore, they must be comprised of the bulk of the refinery output which is generally cracked and straightrun gasoline.

Engine Affects Antiknock Value

IT is also known that the automobile and truck engine, as we know it today, will operate with less knock on a motor gasoline comprised of a large quantity of cracked material than it will on an aviation gasoline of the same octane number. In other words, the antiknock value of a gasoline depends not only on the laboratory octane number of the fuel but on the engine and vehicle in

which the fuel will be used. For example, it is quite possible that postwar premium gasoline of not over 85 octane number will have better antiknock performance on the road than 91 octane aviation gasoline.

It is logical, therefore, that the refining industry will convert much of their new wartime refining equipment before attempting to make postwar motor gasolines. This will be necessary in order to make a fuel more suitable for passenger car and truck engines, and at the same time a fuel of reasonable price. Consequently, we cannot calculate the octane number of postwar motor fuels on the assumption that the refining industry will continue to produce 100 octane gasoline up to the full limit of capacity and dump the excess into motor fuel.

Factors that will influence the antiknock quality of postwar motor gasolines are:

1. Relative percentages of various grades of gasoline that will be manufactured.
2. Vehicle requirements.
3. Competitive demands.

1. Effect of Producing Three Grades

TO understand the effect of varying the quantity of the usual three gasoline grades (premium, regular, and third grades) on the octane number of the finished products, it is necessary to briefly outline the refinery method of making gasoline. Gasoline is not made from a single refinery product but is a blend of various materials and Ethyl Fluid. Before the war the usual motor gasoline was a blend of straightrun gasoline (a product derived

(TURN TO NEXT PAGE, PLEASE)

THE ANTIKNOCK QUALITY OF POSTWAR GASOLINES

(CONTINUED FROM PAGE 39)

from crude oil by simple distillation), thermally cracked and reformed gasoline (a product made by cracking or breaking down the heavier fractions into the gasoline boiling range), and polymer gasoline (a material made by polymerizing light waste refinery gases). The octane numbers of these constituents vary considerably as shown in the following tabulation:

	Average Amounts	
ASTM Motor Octane No.	Usually Produced,	% of Total Gasoline
Straightrun	55	20
Thermally cracked and reformed	70	78
Polymer	80	2
Ethyl Fluid	—	—

More of the high octane material is used in the production of premium grade gasoline than when making regular grade, and likewise more of the better materials are used in regular grade gasoline than when making third grade gasoline. Since the manufactured amount of these various constituents, based on peacetime economics, cannot be varied to any great extent without building new equipment, the demand for larger quantities of premium gasoline than anticipated would result in a lowering of the base octane number of the regular and third grade products. Thus, octane levels of the various products can be influenced by variation in demand for the products themselves.

Catalytic Cracking a Major Boon

After the war, the refining industry will have available much new processing equipment that was built to meet the heavy wartime demands for aviation gasoline. Since Pearl Harbor, over 800,000 bbls. (Charge rate in bbl. per day) of catalytic cracking capacity were installed compared to a total of about 2,000,000 bbls. of thermal cracking capacity in use in 1941. Increased alkylation, super-fractionation, and isomerization capacity may in some cases have a slight influence on postwar motor gasoline antiknock quality, but catalytic cracking, because of the relatively large capacities installed and because of its inherent adaptability for making good motor fuel, will have considerably more effect than all the rest of the new processing equipment combined.

Thus, after the war the United States refining industry will have available in large quantities a new product for the manufacture of motor fuels, and the average available motor fuel components will be as follows:

	Estimated Amounts	
ASTM Motor Octane No.	to be Produced,	% of Total Gasoline
Straightrun	55	20
Thermally cracked and reformed	70	42
Polymer	80	3
Catalytically cracked	78	35
Ethyl Fluid	—	—

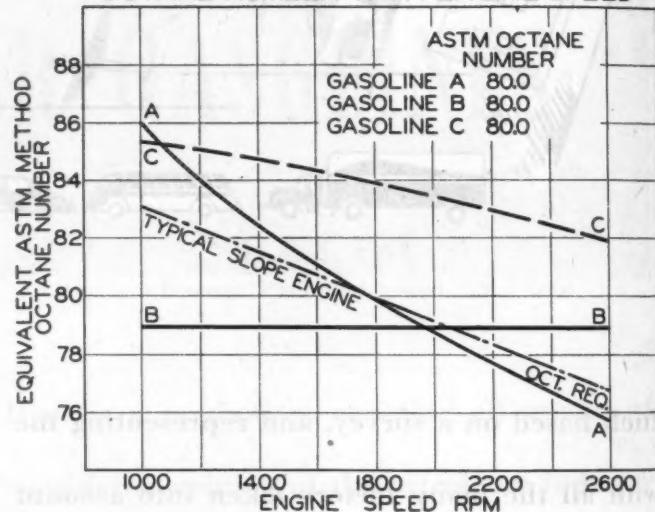
It is clear from this table that the new blending stock will increase the antiknock value of the finished gasoline, but it should be emphasized again that the octane number, as such, does not tell the full story. Because of improved refinery methods and improved blending possibilities, the new gasolines will show better antiknock characteristics in automobiles, trucks, and buses than is indicated by the laboratory octane number.

2. Effect of Vehicle Requirements

FUEL antiknock requirements of postwar vehicles are not expected to have an immediate effect on fuel quality. Although the design of new vehicles will be started, the manufacturer cannot sell a truck or bus that would require a high quality postwar fuel until that fuel is available. Therefore, immediate postwar gasoline quality will be determined more by refining possibilities than by vehicle needs. As soon as new engines, designed to use the new gasolines, are in use, they will have a stabilizing influence on antiknock quality.

Because postwar vehicles and engines are not available at this time for test purposes, it is probable that gasoline manufacturers will make improvements in gasolines based on past trends of vehicle and engine design. Based on present and prewar designs, the average heavy-duty and automobile engine requires a fuel of about 5 to 7 octane numbers better at low speeds than is required for knock-free operation at high speeds. This trend is illustrated by the dash-dot line shown in Fig. 1. This variation in

FIG. 1
VARIATION IN EQUIVALENT ASTM OCTANE NUMBER WITH ENGINE SPEED



actual engine needs is not indicated by the laboratory octane number rating of a fuel, which explains the fact that all gasolines of the same octane number will not necessarily have equal antiknock characteristics when rated in a full-scale engine.

To obtain knock-free operation, it is necessary that the fuel used have an equivalent octane number equal to or better than the engine octane requirement throughout the engine speed range. In this case it is obvious that although the three test fuels have the same laboratory octane number, fuel C is the only fuel which will give knock-free operation at all speeds. Fuel B will knock at low speeds, up to about 2000 r.p.m., and fuel A will knock at high speeds, above 1800 r.p.m. If postwar engines are of different design, it would be reasonable to expect a change in the relative rating of these test fuels.

Transmissions Could Affect Quality

ANOTHER factor to consider in postwar vehicles is the effect of special transmissions. With the present type of gear box the engine can be fully loaded at low engine

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HEARD BY THE GREASEMAN

by A. EGGLETON



The Driver complained that the handles of the right door were gone—no one could get in or out. "That'll keep the girls out," said the Foreman. "Or I can get enough in and then slam the door shut," came back the Driver.

"Wonder why the motor keeps heating up and taking water?" asked the New Driver.

(They found the bottom radiator hose disconnected.)

"For cripes sake," groused Red, also known as Hell on Wheels, "do something with the valves on my new Autocar. They sound like a gatling gun, ready to fly out. And I don't like to break in new tractors at 35 m.p.h. I like to go maybe 45 to 55." "Or maybe 65 to 75" said the wise, old Foreman.



PETE

Pete the Helper was sweating on a 11.00x20 tire off for the first time and stuck with the first paint still dried on it. "Why, there's nothing to it" said the 250-lb. Tireman coaxing it off with a yank here and a yank there, in the right place at the right time. "It must be nice to be half horse," said Pete sadly, walking away.

And then they started talking about the lack of polliwogs, bait for bullheads. The whole garage finally got in it, except Pete the Helper. He listened while one said he only found eight after hunting all Saturday, while another shouted he knew where he could go out and get a bushel basketful in a half hour, with legs too—and so on and on. Well all I can say," said Pete, "is that these polliwogs are going to cost the company plenty."

"Will it stay on?" the Boss asked Pete the Helper, working on a muffler for the fifth time that cold, rainy day. "Well, it might stay on 25 minutes," said the tired Pete . . . "maybe half an hour if they don't run it."

Two mechanics yarning about a trip up a rough lake in their motor boats. "Why you haven't enough motor for that trip," said one. "Sure I havg, said the other "it uses enough gas."

WHISTLE, DAMN YOU, SHOUTED THE DISTRACTED FOREMAN AT THE TRAIN WHICH ALWAYS TIMES IT TO BLOW FOR THE CROSSING AS HE IS TRYING TO GET A TELEPHONE CALL, "WE KNOW YOU CAN'T SING."



GABRIEL

"I guess I'll have to start buying large kitchen matches," said Gabriel the Yardman, who had just burned his fingers lighting a cigarette. "Or stop looking at Rosie," said the Dispatcher.

Gabriel the Yardman was telling about the peculiar driving of one of the Old Timers he had watched taking a load through the downtown district. Said Gabriel: "He was going in fits and starts, backing and buckling. I don't understand it, he's been driving for 20 years." "Well that explains it," said the ex-driver mechanic sourly.

THE SAME MECHANIC WHEN SOMEONE TALKING ABOUT GABRIEL SAID THERE WAS ONLY ONE LIKE HIM: "THANK GOD."



FOREMAN

"From 9 to 3 coming 100 miles!" said the Foreman looking at the Driver's Trip sheet. "Just look at the baling wire around the muffler," came back the Driver, "that'll explain it."



And the mechanic with the talking wife when someone told him she would scream when she saw his dirty shirt: "Well, she won't be able to scream too long."

They were talking about the low license numbers around the city. "Why they must give them out at a Bingo game," said one driver.

A Driver reported his front-end had shakes, just like Joe, the mechanic with the hangovers. And when someone invited Joe to have a drink one Monday morning recently Joe said, "Nothing doing, I'm strictly temperance." "How long?" in an amazement. "Since last night," said Joe.

Sad note from one of the night mechanics to the day crew: "I put a new heat riser gasket on No. 8421. When I got the manifold all tightened up I found this little thing on the floor. The three nuts on the intake are loose. Please help. Love and kisses." The little thing on the floor was a piece of the manifold gasket.



ROSIE

The buxom Rosie, sparring with the Night Dispatcher: "Some day I'll take you down and sit on you." "Wh-Wh-What are we waiting for," stuttered the flustered Dispatcher.

"That Driver has his complaints ready before he even leaves the other terminal" said the mechanic disgusted. "Shall I wake him," said the helper, "he's sleeping in that cab." "For God's sake no, he'll think of something else," said the mechanic. On going they told him he could pull out by the front door. "That's good," he said, "I like to be thrown out the best way."

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Fig. 1. Shop work card, 8½x11-in. form. Work done as required through trip report is recorded, corresponding to each service. Mechanic initials left



H. B. Devine

OUR company, Wells, Inc., Reno, Nev., operated under a tonnage contract a Defense Plant Corp. fleet of specially-built tractor and trailer trains between the magnesite calcining plant at the Gabbs Valley quarry and the huge refining plant at Las Vegas, Nev.

The 334-mile run was through some of the most extreme weather conditions ever inflicted on a transportation fleet. Even during mid-winter, Las Vegas, has many warm days; by spring the temperature reaches what is usually considered mid-summer heat elsewhere. Yet the route of our trucks wound through two low ranges of hills where sudden winter sleet and snow storms were quite common experiences for our drivers.

These 45,000-lb. trains often left Las Vegas clean, to end their run at Gabbs covered with ice and snow, and weighing in at the calcining plant empty with an additional ton of icy blanket over them.

These weather conditions and the length of haul put a strain on both personnel and equipment, and necessitated special precautions in preventive maintenance. In the beginning, the units were of a special design for the job of hauling, with minimum wastage of the dust-like calcined magnesite to be transported. Extra-large radi-

WELLS INC. SHOP WORK CARD	
Truck No. <u>38</u>	Trip No. or Odometer Reading <u>42265</u>
Trailer No. <u>38A</u>	Trip No. or Odometer Reading <u>33482</u>
Date <u>Mar 24th 1945</u>	Shop Location <u>Reno</u>
NO 1 SERVICE ✓ Check for Broken, Loose or Damaged Parts. ✓ Check Motor Oil, Amount Added. <u>2 qt.</u> ✓ Check No. 1 Transmission, Amount Added. <u>1 qt.</u> ✓ Check No. 2 Transmission, Amount Added. <u>0.5 qt.</u> ✓ Check No. 1 Differential, Amount Added. <u>2 lbs.</u> ✓ Check No. 2 Differential, Amount Added. ✓ Check Lights. ✓ Spark Gloves, Fuses, etc. ✓ Check Tire Tools and Jack. ✓ Check Safety Equipment. ✓ Check Safety Chains. ✓ Check Skid Chains. Change Oil, Amount. <u>51 gal.</u> Fill Batteries.	
NO 2 SERVICE ✓ Complete and Recorded on Service Card.	
NO 3 SERVICE Change Filter. Adjust Valves and Injectors. Adjust Brakes. ✓ Check Motor. ✓ Check Front Wheel Bearings. ✓ Check Clutch Pedal Adjustment. ✓ Check Air Compressor Valve Adjustment. ✓ Check Front Wheel Alignment. ✓ Check Steering Joints and Frame Bracket. ✓ Check Generator Brushes. ✓ Check Voltage Regulator Setting. ✓ Check Torque Arms. ✓ Drain Oil No. 1 Transmission. ✓ Remove Side Plate and Inspect Gears. ✓ Check for Play in Countershaft. ✓ Check for Play in Main Shaft.	
NO 4 SERVICE ✓ Clean Fuel Pump Screen. ✓ Clean Air Filters. ✓ Tighten Differential Bolts. ✓ Tighten Drive Line Flanges. ✓ Tighten Drive Line Bearing Caps. ✓ Tighten Axle Flanges. ✓ Tighten Spring U-Bolts. ✓ Flush Radiator. ✓ Complete and Recorded on Service Card.	
NO 5 SERVICE ✓ Refill No. 1 Transmission, Amount.	
NO 6 SERVICE ✓ Complete and Recorded on Service Card.	
NO 7 SERVICE ✓ Refill No. 2 Transmission, Amount.	
NO 8 SERVICE ✓ Complete and Recorded on Service Card.	
NO 9 SERVICE ✓ Refill No. 1 Differential, Amount.	
NO 10 SERVICE ✓ Complete and Recorded on Service Card.	
NO 11 SERVICE ✓ Refill No. 2 Differential, Amount.	
✓ Complete and Recorded on Service Card.	
✓ Repack No. 1 Axle on Truck. ✓ Complete and Recorded on Service Card.	
✓ Repack No. 2 Axle on Truck. ✓ Complete and Recorded on Service Card.	
✓ Repack No. 3 Axle on Truck. ✓ Complete and Recorded on Service Card.	
USE REVERSE SIDE TO SHOW TIME	

by H. B. DEVINE

Maintenance Superintendent, Wells, Inc., Reno, Nev.

A Powerful 5-Form

ators were put on the tractors to combat the excessive heat. However, our PM program was, in the final analysis, what kept the trains on the road, and the major factor concerned in our record of 13,500 tons a month average over a period of five months just prior to the closing of the entire operation.

Major repair shops were maintained at Luning, near the north end of the haul, and at Henderson, near Las

WELLS INC.					
INSPECTION AND SERVICE RECORD OF EQUIPMENT NO. 38					
NO. 1 SERVICE		MILEAGE		DATE	
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
3-21-45	41755	3-24-45	42465		
RECORD OF EQUIPMENT					
DRIVER'S TRIP REPORT OF EQUIPMENT					
Truck No. 38 Trailer No. 38A Estimated Miles Run This Trip 110 Odometer Date 3-24-45 Time in 6:30 AM Place From San Francisco Amount of Oil Put in Motor En Route This Trip 2 1/2 gal Amount of Fuel Put in Tanks En Route This Trip 74 gal					
REPORT BELOW ALL MECHANICAL AND TIRE DELAYS OF 10 MINUTES OR MORE					
PLACE	REASON FOR DELAY		HOURS		
California	changed tire, type on trailer		2 1/2		
Sacramento	repaired fuel line		1/2		
Were Sled Chains Used This Trip? <input checked="" type="checkbox"/> YES					
Driver's Signature: John Doe					
Check (✓) Mark the Above Items Needing Attention and Explain Below					
A.S. clutch grab R.R. right front spring broke A.S. started does not always work					
Mechanics: Use above space to initial work done. Circle items not done. Dot parts used on reverse side.					

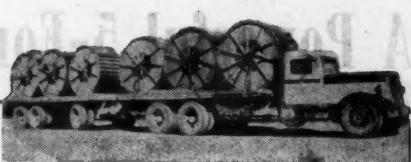


Fig. 2, extreme left. Inspection and service record of equipment, 8 1/2 x 11 in. form kept by foreman on each truck. Fig. 3, left. Driver's trip report, 8 1/2 x 11 in., filled out by driver. Sends truck to shop for necessary service. Above and upper left, opposite page. Typical heavy vehicles of Wells fleet

Western fleet's system embodies a driver equipment report, inspection and service record, shop work form calling for 11 services, mechanical repair and parts records

PM Program

Vegas. A maintenance crew of 25 men were required to service the carriers constantly, but the program proved so satisfactory that it has been adopted for our own fleet of dumps, transports and small trucks operating throughout Nevada, at Marsing, Idaho, and Tooele, Utah, with branch shops near each job and the home shop for rebuilding in Reno.

The PM program which we evolved was a relatively

SAYS THE MAINTENANCE CHIEF . . .

"The 334-mile run from Gabbs Valley to Las Vegas, Nev., is through some of the most extreme weather conditions ever inflicted on a transportation fleet.

"The resulting strain on personnel and equipment necessitated special precautions in preventive maintenance. The program we evolved was a simple system that could be grasped easily by drivers and maintenance men.

"The program calls for 11 distinct services at varied intervals. The use of five forms enables us to know exactly what has been done, when and by whom, what will need to be done soon and what parts were used.

"We have increased tire mileage to almost 85,000 miles, with some being used as long as 180,000. The little extra time it takes for maintenance repays in fewer road failures, less serious mechanical breakdowns and longer equipment life."

simple system that could be grasped easily by new drivers and maintenance men—and labor turnover is unavoidable when 80 men are employed.

Five Record Forms Used

FIVE forms are used: M-1, the driver's trip report of equipment; M-2, inspection and service record of (TURN TO NEXT PAGE, PLEASE)

A Powerful 5-Form PM Program

(Continued from Page 43)

WELLS INC. MECHANICAL RECORD OF EQUIPMENT NO. _____							
MOTOR		DATE		MILEAGE		DATE	
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
AIR COMPRESSOR							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
FUEL PUMP							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
CLUTCH							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
HO. 1 TRANS.							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
HO. 2 TRANS.							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
HO. 1 DIFF.							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
HO. 2 DIFF.							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
BRAKE VALVES							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
BRAKE RELINES							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE
BRAKE							
DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE	DATE	MILEAGE

WELLS INC. MECHANICAL DATA RECORD OF EQUIPMENT NO. _____							
Rod Bearings		Cyl. Size					
Main Bearings	Type	Year	Model				
Make	Model	Motor No.	Motor Model				
Serial No.	Make	Model	Make	Model	Make	Model	Make
Clutch		Front Trans.					
Brake		Differential					
Front Axle		Rear Axle					
Steering		Air Compressor					
Generator		Starter					
Regulator		Power Takeoff					
Hoist		Winch					
Fifth Wheel							
Front Drive Shaft Make		Series	Length				
Center Drive Shaft Make		Series	Length				
Rear Drive Shaft Make		Series	Length				
Front Brake Drum Make		No.	Rear Brake Make	No.			
Front Brake Lining No.			Rear Brake Lining No.				
Front Wheel Bearing O. Cone		O. Cup	In. Cone	In. Cup			
Rear Wheel Bearing O. Cone		O. Cup	In. Cone	In. Cup			
Front Spindle Bearing No.		Bear Spring Driving No.					
Front Axle		Body Type	Diff. Ratio				
Remarks							

Fig. 4, top. Mechanical record of equipment, 8½x11-in. form, the key for referring to M-1 and M-2 to find out what was done and by whom on any part of equipment. Fig. 5, above. Mechanical data record, 8½x11-in. form, is a listing of the makes, sizes, models, serial numbers of all equipment. This form makes information available at the main shop as needed.

equipment; M-3, shop work card; M-4, mechanical report of equipment; and M-5, mechanical data record of equipment.

The use of these cards with each piece of equipment enables us to know exactly what has been done, when and by whom, what will need to be done soon, and what parts went on which piece of equipment when they left the parts room. The system provides me with a complete but uncomplicated method of checking work done, of knowing all the detailed case history of every truck and trailer.

Through the use of this system we have increased our tire mileage average to almost 85,000 mile, with some individual tires being used as long as 180,000 miles. This record is remarkable to us because we have to subject our tires to such grueling work. Aside from the mileage record we have found that this PM program has enabled us to keep our equipment on the job longer without time taken out for complete overhauls and with an absolute minimum of breakdowns on the road.

Each driver is required to fill out Form M-1, Driver's Trip Report on Equipment, at the end of each trip. It is filed in the shop office and serves to call attention to any difficulties experienced by the driver. If a tire has had to be changed, the wheel location is noted, such as "RRI on trailer," etc., length of delay and approximate place. Routine information must be entered on the card including truck and trailer identification numbers, trip number or odometer readings for each, date in, time in, and from where. Amounts of fuel and oil added must be noted. Then follows an alphabetical list of 36 items which, by our experience, are most likely to cause trouble (with space for additional items to be written in). Any of these may be marked with a check by the driver to call attention to mechanical faults. Explanations of the checks are entered below.

When the items checked by the driver have been either repaired or replaced by the mechanic, the mechanic initials the job. Items not done are circled, and parts used are entered on the reverse side of M-1.

Upon receiving the driver's report of the trip, the shop foreman checks the mileage reported against miles on Form M-2, Inspection and Service Record kept on each piece of equipment, then check-marks services due on Form M-3, Shop Work Card.

After the required work, as shown on M-3, is done, it is initialed by the mechanic and again recorded on M-2 to show date and mileage when the service was done.

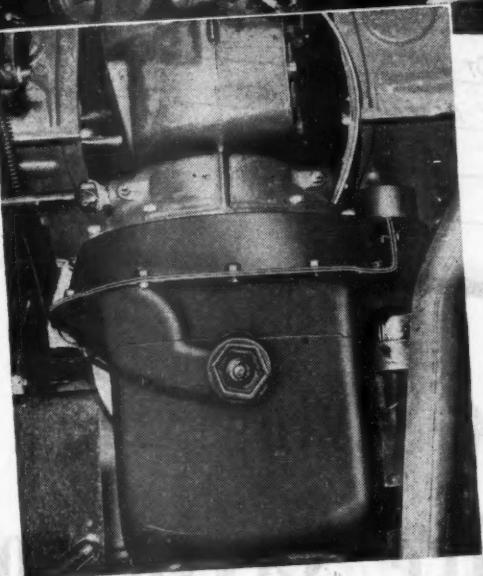
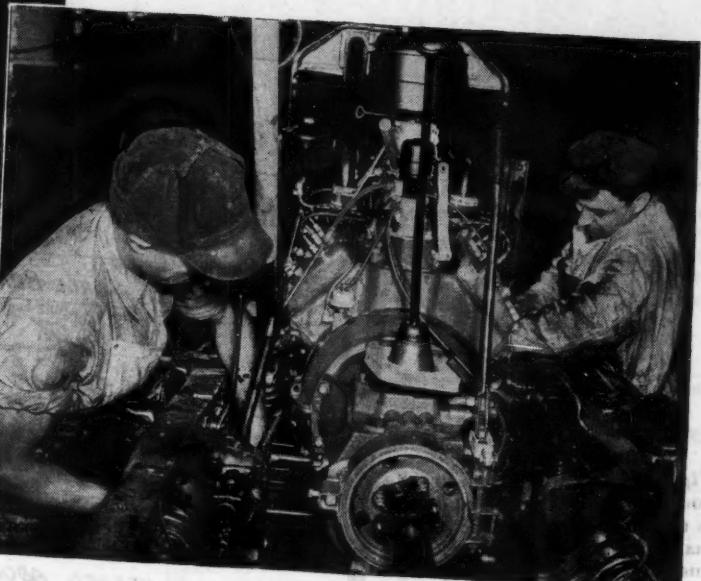
Shop Work Form Most Important

FORM M-3, Shop Work Card, is one of the most important phases of our PM program. It lists in detail, beside the truck and trailer number, date and trip number or odometer reading, all the services to be done on the piece of equipment. No. 1 service, consisting mainly of checking all the mechanical parts and adding oil and grease as well as inspecting the tires, is done every 500 miles. No. 2 service, changing oil and filling batteries, is done every 1000 miles, in addition to No. 1.

No. 3 service, done every three thousand miles, includes those items done on No. 1 and No. 2 services. In addition filters are changed, valves and injectors are adjusted, and brakes are adjusted. The constant check given through No. 1 service, every 500 miles, has enabled us to know that these items listed on the succeeding services are checked at regular intervals so that no sudden mechanical failure from lack of care can possibly occur.

Number 4 service includes flushing the engine, checking front wheel bearings, clutch pedal adjustment, wheel

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Upper left. Heavy duty Ford truck engine used on current production at the Rouge plant. Improvements include integrally cast crankshaft pulley, oil bath air and oil cleaners. Upper right. View of engine on assembly line. In foreground is the gear shift lever minus reverse gear latch formerly used. Left. Closeup of new split-type crankcase installed on all 1½-ton Ford trucks. Permits clutch replacement without removal of crankcase

Better valve cooling, water-proof electrical system, split oil pan, 4-ring pistons among the engine and chassis improvements featured

Ford Trucks Have War-Tested Improvements

ANALYSIS of the detail improvements made in the line of trucks recently announced by Ford Motor Co. shows unmistakably that the fleet operators will be given full advantage of the experience gained in arduous military service. The lessons learned under extreme conditions of the war thus are being translated into changes and improvements which should go far to increase the life and serviceability of commercial vehicles.

Ford has announced two lines—the commercial car Model 59C on 114-in. wheelbase; and the 1½-ton Model 59T which is offered in 134-in. and 158-in. wheelbase. The 1½-ton models come with 7.50 x 20 tires with dual wheels at the rear as standard equipment. The two-speed rear axle is optional equipment and, when supplied, it is equipped with 8.25 x 20 tires on dual wheels.

Both the commercial car and the 1½-ton models are

powered with the familiar V-8 Mercury engine, now incorporating some interesting detail changes and improvements. The V8 engine has 3.18-in. bore and 3.75-in. stroke, 239-cu. in. displacement, rated at 100 b.h.p. at 3800 r.p.m. The pistons are of aluminum and are fitted with four rings instead of the three-ring type formerly used. This provides better oil control and improves oil economy. In addition, the pistons are fitted with heavier wrist pins for increased wear life. As announced some time ago, this engine features the Silvalloy rod bearings developed and produced by Ford.

Several other refinements have been introduced to improve lubrication and oil economy. The oil system pressure has been increased; and the rear main bearing oil seal redesigned. The latter change was made to provide

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TRUCK NUMBER		477		DRIVER		J DOBBS		
SUPERVISOR'S REPORT ON TRUCK CONDITION								
TIRE PRESSURE		R.F.	L.F.	L.R.I.	L.R.O.	R.R.I.	R.R.O.	PRESSURE SHOULD BE
		70	75	65	70	60	65	75
TIRE CONDITION		G	G	G	G	40% WORN	G	THIS TIRE TO BE CHANGED
FENDERS		LEFT FRONT 2 SMALL BUMPS		RIGHT FRONT OK				
CAB		LEFT DOOR OK	RIGHT DOOR OK	WINDSHIELD REGULATOR	R. VIEW MIRRORS OK		REAR GLASS OK	
FLOOR MAT		CLEAN OK		CUSHION OK		SMALL HOLE LEFT SIDE BACK REST		
BODY		CLEANLINESS INSIDE CAB OK		R. SIDE FRONT OK		R. SIDE REAR ROAD SCRATCH REAR OVER TRANSFER OK	L. SIDE REAR OK	L. SIDE FRONT OK
CONDITION OF TARP OK								
RADIATOR NEEDED ABOUT 2QT WATER								
REPAIRS NEEDED AND NOT REPORTED BUMPS IN FENDER								
DATE INSPECTED 4-30-44								BY JOHN DOE
REMARKS								

Fig. 1, right. Report on truck condition. This 9½x7-in. form is used by sales supervisor, who makes inspections of trucks at unscheduled intervals, keeping drivers alert. Fig. 2, below. Illuminated sign used for pertinent messages to drivers. Messages, changed frequently, bring excellent results



Ronald R. Brown



WE have not had the opportunity of comparing wartime tires with the pre-war tires. We have not been eligible for wartime tires. We are not in a preferred business classification. Those units of our fleet still operating, 70 out of a normal 124, are rolling over city streets and state highways on pre-war rubber carcasses. The tread actually meeting the pavement, however, is wartime rubber. We have no tire that has not been recapped multiple times—the majority five times, some less, a few as high as seven times. But experience shows us that by using the seven-times recapped tire we are taking a chance. We have had to take this chance.

The significance of our particular situation is that we

"Life-Saving" Tire Saving of

by RONALD R. BROWN

Garage Superintendent, Vernor's Ginger Ale, Detroit

have had to readjust ourselves to a completely new, strange and uncharted course of operational procedure and technique. All facets of our fleet operation is affected. Manpower is way down; gasoline allotments are rigid, there are NO new tires for us.

In 1941, our 124 vehicles ran 1,243,632 miles. Then the restrictions hit us. In 1942, 89 trucks covered 830,364 miles. In 1943, 79 vehicles made 640,157 miles. In 1944, 70 trucks ran only 593,814 miles. Thus we are using 54 less vehicles than in 1941 and have reduced our mileage by better than half.

These figures could lead one to assume that we might have laid up trucks voluntarily in an attempt to save rubber for those units still operating. This would be a wrong assumption. Vehicles are laid up either because they lack tires completely or because of some other maintenance problem or restrictions.

REPAIR REQUEST JAMES VERNOR COMPANY	
MAKE	Ford
MODEL	
TRUCK NO.	511
DATE ISSUED	2-2-45
DESCRIPTION OF WORK NEEDED	
Service Call to Forest & 3rd flat tire 11125253- on A077150B- 21754090- off 1310745- off Mileage 42240	
REPAIRS REQUESTED BY	
APPROVAL	
SHOP ORDER NO	

FORM 32-2 4M 7-44 PRINTED IN U.S.A.

REPAIR REQUEST JAMES VERNOR COMPANY	
MAKE	Ford
MODEL	
TRUCK NO.	511
DATE ISSUED	3-9-45
DESCRIPTION OF WORK NEEDED	
Left rear outside tire flat. E53975- on A077150B- off. Mileage 42640	
REPAIRS REQUESTED BY	
APPROVAL	<i>M. L. Johnson</i>
SHOP ORDER NO	

FORM 32-2 4M 7-44 PRINTED IN U.S.A.

TIRE RECORD JAMES VERNOR COMPANY							
MAKE	U.S.						
DATE	TRUCK NO.	WHEEL	ON	OFF	ELAPSED	CUM.	REMARKS
4/5/44	347	LF	66059	66572	423		FLAT
4/3/44	476		52818	55905	3/47		FLAT
4/5/44	473	RR	69313	69414	41		FLAT
4/26/44	474	RR	63058	63658	560		FLAT
4/24/45	511		54240	54250	400		FLAT
4/14/45	470	LR	64910				

3/28/44 10-65
SIZE 32X6 (8 PLY) NO A077150B

FORM 32-2 4M 7-44 PRINTED IN U.S.A.

Fig 3, left. Repair request, 4x7-in. form filled out on each tire failure, lists serial number, mileage and a description of work needed. Fig. 4, below. Tire record card, 5x3 in., master form for recording case history of each tire. Data from repair request is transferred to this card.

a "Non-Essential"

Ineligible for new tires, beverage fleet alerts drivers daily with conservation reminders, devises periodic and spot checks that make possible as many as seven recaps

With less trucks in 1944, tonnage carried exceeded that of all previous years. Sales have been heavier. The explanation is that in ordinary times our trucks might have left our shipping rooms fully loaded, or half or even quarter loaded. They might have returned with a good portion of the original load. But now they are loaded to capacity and always return empty. This latter condition alone leads to longer tire life.

DESPITE the increased tonnage carried, our tire costs are running just about the same as they did in normal years. We used to buy about \$4500 of tires per year.

(TURN TO NEXT PAGE, PLEASE)

IN BUSINESS . . . AND HOW! IN SPITE OF RESTRICTIONS

Fleets in the so-called non-essential category have been hard pressed by wartime restrictions and limitations. The fact that most of them still are in business is a tribute to the ingenuity displayed in their fleet maintenance practices.

In the case of tires, particularly, have hardships been acute. Just how one fleet overcame this seemingly insurmountable obstacle is related in detail in this article, from which all fleet operators may well take valuable pointers. Here are a few:

"First we realigned all our front ends . . . steering mechanisms were tested . . .

"We instituted our tire record filing system . . . we could not have conserved our tires and kept the fleet going without it.

"We give our tires a major inspection . . . every 800 miles. Additional tire inspection is made all the time by mechanics working on truck repairs. Another inspection is given, perhaps three times a week, by a sales supervisor who, without previous notification to the driver, drops around to the garage and picks three or four trucks out at random . . .

"We use signs, very effectively, to get drivers to watch tire pressures."

What is the price that this fleet pays for such stringent maintenance practices? We quote:

"Despite the increased tonnage carried, our tire costs are running just about the same as they did in normal years.

"We have gained something in that we now recap tires that most fleet operators would consider fit for junk only."

"Life-Saving" Tire Saving of a "Non-Essential"

(Continued from page 47)

In 1944, maintenance costs on our tires ran around \$3500, not including the cost of labor in looking after them. These costs are mounting year by year as the tires become older and require more and more attention. But we are satisfied with our maintenance costs, and are constantly surprised at the mileage we are getting out of tires that we once threw away as junk. We feel that this economy is a tribute to and a manifestation of the value of a tire maintenance program.

Our tire maintenance methods, in fact all of our measures of preservation, are a blend of other people's ideas and our own. Trade journals furnish us with many excellent ideas. Magazines with operational articles that interest us are tabbed with a little piece of cardboard and filed away. Thus we have a home-made but very valuable source of up-to-date and ready reference.

Prewar we operated six tractors and huge trailers covering Michigan, Ohio and reaching down into New York state. Three of these units have been forced off the road because of lack of tires. Another will be laid up as this is written for the same reason. This will leave only two in operation. To replace these units we have had to hire common carriers. This is much more expensive but we have no alternative.

We operate 17 large trucks; three 5 ton and 14 of 3½-ton capacity. Four of the latter are idle. The balance of our fleet are 1½-ton panel jobs with detachable bodies. Many of these also have been forced off the road.

War Spurred Rigid Tire PM

EARLY in the war we learned that we would not be eligible for new tires. Immediately we started our tire maintenance program. First we realigned all front ends on our own realigning machine. The majority of our vehicles needed this attention. Many had worn bushings. Cambers were not true. Steering mechanisms were tested, repaired if necessary, and then thoroughly lubricated with a special steering gear lubricant. We do believe that lots of the right kind of lubricant applied on a rigid schedule is a fine way of keeping a fleet out of the repair shop. Economical operation is gained.

Correcting these conditions led to much work but we know now that we gained many additional thousands of miles of tire service by doing this.

At the time of realigning we instituted our tire record filing system. This is a comprehensive system telling us the case history of every single tire we own. The tire record file is very active in my office. We could not have conserved our tires and kept the fleet going without it. We keep right on top of our tires by constantly consulting our tire record file.

Our tire record cards give us the following comprehen-



Fig. 5. Body loading hoist lifts empty bodies from trucks and sets loaded ones back on chassis. This saves manpower and enables men to get the truck back on road in two minutes

hensive information: Whether the tire is in reserve, out for repair, or in use. On what wheel it is on and what truck. It gives mileage and date tire was last repaired or recapped. From what truck and wheel it was pulled and what truck and wheel it went back on. When tires are switched, however, during a matching in the garage, we may not mark down the wheel to which that tire is switched. But if the tire goes flat then we mark down wheel and wheel it goes on after repair. We mark down the mileage covered between repair or recaps as well as the cost of such repairs or recaps.

Every tire has a card giving tire size, sometimes description, such as 8 ply, and always the serial number. The number of the truck using the tire is always marked down. Under this number we file all tire record cards.

The information contained on the tire record card is vital to us in preserving our tires. This concrete and definite system of marking down all pertinent information eliminates guesswork which will defeat the best of maintenance intentions. This information is a direct lead to conservation that has given us thousands of additional miles of tire wear.

INFORMATION on tires emanates from two sources, the driver or the tire man. This information is marked down on a "repair request" form and from there transferred to the tire record card. For instance, on Dec. 28th, 1944, the driver of truck No. 474 had a flat on the right rear wheel. Tire A077150B was put on and tire No. 109354A taken off. At the same time, the repair request form told us that the right rear hub bolt and nut was missing. This occurred at mileage 63058. All of this information was transferred from the repair request form to the permanent tire record card, with the exception of the matter of the missing hub bolt. This information does not concern the tire and is not, therefore, included.

Since this flat on Dec. 28th, further repair request
(TURN TO PAGE 105, PLEASE)

HIGHLIGHTS OF INLAND PETROLEUM'S PROFIT SHARING TRUST

CONTRIBUTIONS: The company alone contributes to the trust fund which is managed by a corporate trustee. Amount paid is 10 per cent of all its earnings in excess of \$25,000 per year.

PARTICIPANTS: Every regular employe, under 65 years of age, who has completed five years of service, as of Dec. 31, 1943, whether or not continuous, shall be participant so long as he remains a regular employe. There are four participation groups, as follows:

Group A, five but less than 10 years' service, shall participate pro rata on the basis of their total compensation.

Group B, 10 but less than 15 years' service, shall participate pro rata on the basis of two times their total compensation.

Group C, 15 but less than 20 years' service, shall participate pro rata on the basis of three times their total compensation.

Group D, 20 or more years of service, shall participate pro rata on the basis of four times their total compensation.

WITHDRAWALS: No participant shall be entitled to make any withdrawals until his employment by the company shall have been terminated.

Fleet and Men Profit by Profit Sharing Plan

Northwest fleet creates retirement trust which stops manpower losses, insures loyalty and stimulates best production efforts

by WARREN CRANE

WITH a profit sharing trust to encourage loyalty, several novel time-saving gadgets and many useful commercial forms to promote efficiency, which will be outlined in an article in the August issue, the Inland Petroleum Transportation Co. of Seattle has been furnishing effective aid to the government in its war effort. Upon the outbreak of hostilities in 1941, the organization was one of many carriers who were called on to handle an enormous bulk of petroleum for the army and navy and defense plants in addition to supplies for the necessary civilian market.

The president and manager of the company is R. J. Monroe. He also is chairman of the Advisory Committee to the ODT. Mr. Monroe was with General Motors for periods between 1911 to 1917, and from 1929 to 1935, in various capacities. He took over the Inland management in 1935 when it had been operating three small units for only five months.

Mr. Monroe, affectionally known by all of his employes as "Monty" is a unique character. He treats all of the men and women in his employ as if they were his own boys and girls. He says that his organization is not so big that he does not know them all personally. He can

Above. R. J. Monroe, president, Inland Petroleum Transportation Co., who arranged an employee retirement trust by annual 10 per cent contributions from profits. Right. Brochure, 6x9 in., issued to employees explaining the plan. Below. Typical Inland tank truck-trailer



give them a friendly pat on the back and a word of encouragement. His big, round face beamed when he mentioned the remarkable records of his drivers and he swears that he has the best staff of mechanics and truck operators in the Northwest.

Inaugurate Profit Sharing Trust

"IN ORDER to encourage our employes to stay with us instead of supinely permitting them to quit us and go into the shipyards or airplane plants, we have installed a profit sharing trust that makes it possible for our men to receive a retirement income commensurate with their salaries," said Mr. Monroe.

"Our plan of operation has been fully approved by the U. S. Bureau of Internal Revenue. The board of

(TURN TO PAGE 114, PLEASE)

SHOP & SALVAGE

HINTS

Commercial Car Journal will pay \$5 for acceptable shop hints and \$5 for parts salvage tips. A snapshot or a rough drawing with a simple explanation is all that is needed. CCJ will polish them for publication. Send one in today! Illustrated at right is a typical con-

tribution — just a rough sketch and a brief statement of the problem and its solution. See how it looks in Fig. 1. This brought William Butz \$5. There are other \$5 bills waiting for your contribution. Don't underestimate your ideas. Let the editor judge.

1. Freeing Adjustment Screws

by William J. Butz
Continental Baking Co., Toledo, Ohio

On the 1935 to 1937 Ford rear brakes, when the adjustment screw freezes up, the emergency brake plate has to be removed and the screw cleaned up. A lot of time can be saved in this job if a rubber cork is inserted into the lower part of the adjusting wedge and it is filled with penetrating oil. Within a short time the oil will soak around the adjusting screw so that a few twists will free it.

2. Battery Cable Terminal

by Frank E. Seftchick
Swift & Co., Brooklyn, N. Y.

Scrap copper tubing is used in our shops for making battery cable

terminals. We cut a 2-in. piece of the desired size tubing and press one end flat in the vise. We then drill a hole through the flat side and solder the other end to the cable.

3. Door Lock Modification

by John Gregory
Hertz Driveyourself Stations, Inc.
Milwaukee, Wis.

In the lock rail panel on door lock remote control and window regulator installation on many trucks the window regulator arm often interferes with the door lock remote control link connection. Sometimes the inside door handle is damaged by the arm so that the whole panel must be removed for repair.

We braze a thin metal plate, slightly curved, about 3 in. square

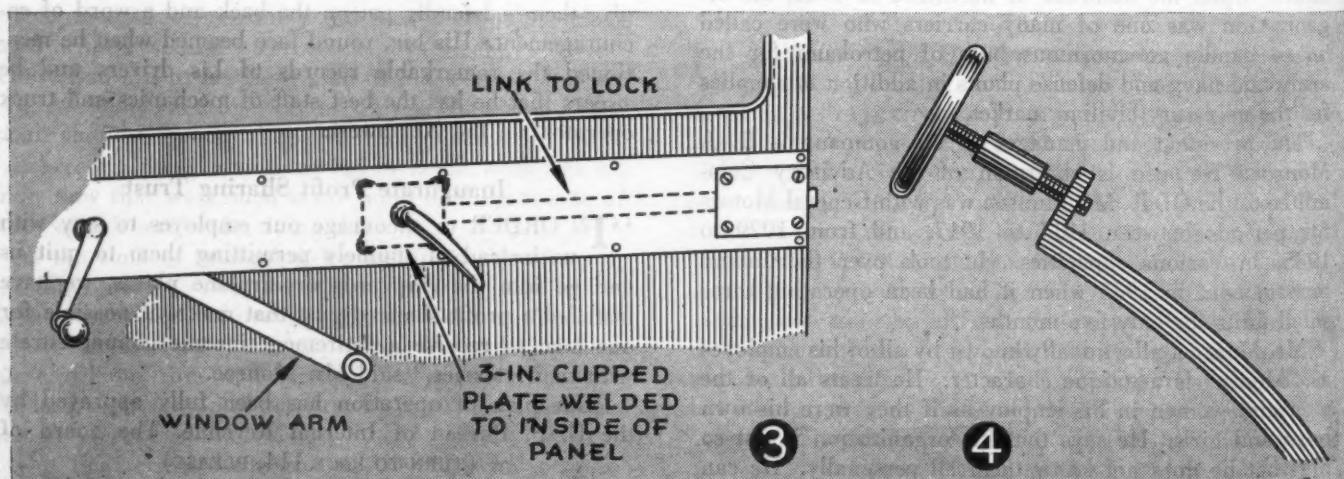
over the remote control link connection. The window regulator arm will by-pass the connection then, without interference.

4. Pedal Extensions

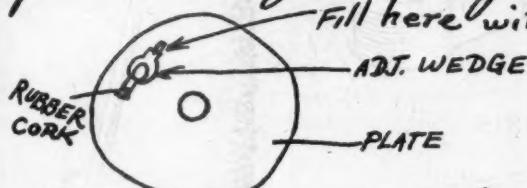
by Budd Shaulis
Continental Baking Co.,
Norristown, Pa.

We have found that in many cases the reason that the drivers clash gears upon shifting is that they do not push the clutch pedal in far enough. To save transmissions as well as to make the driver more comfortable we have made extensions to fit to the clutch pedal and in some cases used them on the brake pedals.

On our type trucks we can screw the pedal pad off and turn a $\frac{1}{4}$ -in. pipe coupling on the pedal arm as



adjustment screw out to clean up
This wastes a lot of time and can be
prevented by this diagram
Fill here with Penetrating Oil



If a rubber cork or plug is inserted
in the lower part of the adj. wedge
and then this wedge is filled with
penetrating oil and left sit for a

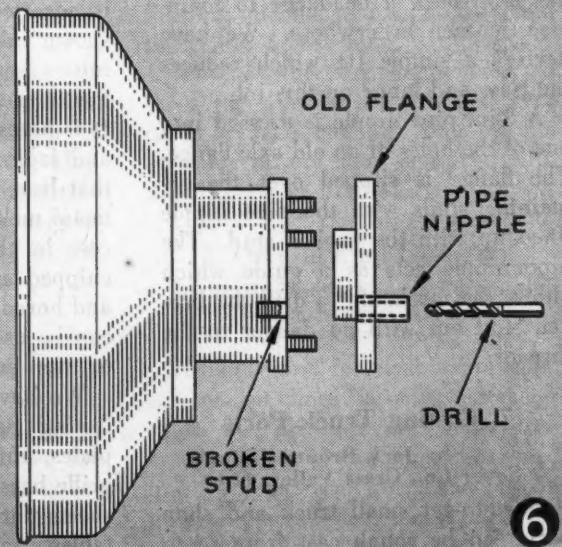
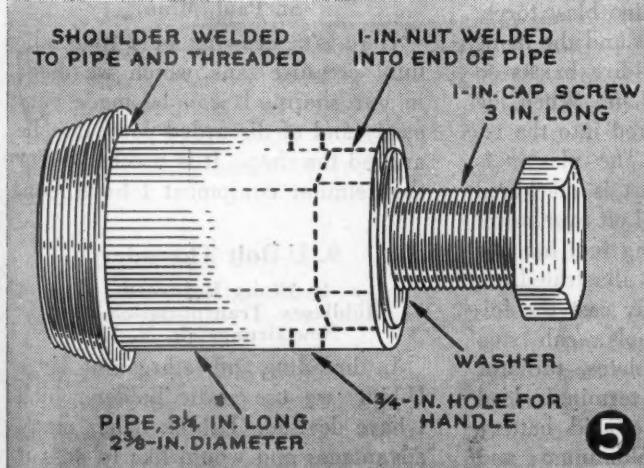
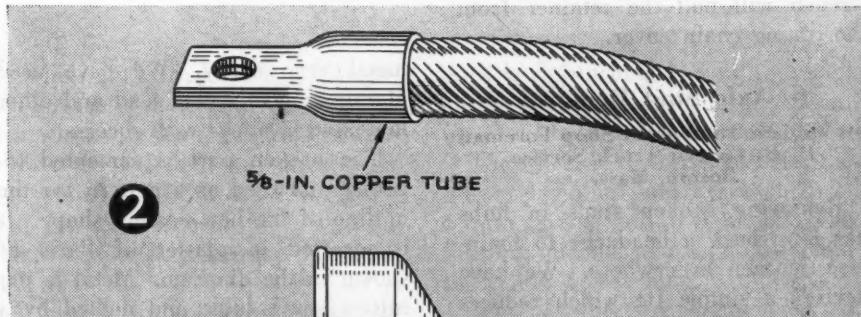
shown in the diagram. We use a
1½-in. length nipple although other
lengths can be made. Another pipe
coupling is screwed into this and
the pedal turned on to the coupling.
Stout men really appreciate this.

5. Oil Retainer Puller

by G. W. Layne
Brooks Transportation Co.
Richmond, Va.

Here is a tool I made for pulling
oil seals in the front timing case of
the WA White Truck. It works 100
per cent and saves a lot of time in
removing oil retainers. It will work
on other trucks with retainers like
this.

From an old rear housing I cut a
cylinder 3¾ in. long, having a diam-
(TURN TO NEXT PAGE, PLEASE)



SHOP & SALVAGE

(Continued from Page 51)

eter of $2\frac{3}{8}$ in. On one end of this short piece I welded a shoulder and then cut threads in it (8 threads to 1 in.). They were tapered from the end as shown in the sketch. (This end will be screwed in between the retainer and the end of the crank-shaft.)

Into the other end of the pipe I electric welded a 1-in. nut and drilled two holes horizontally through the pipe to accommodate a bar for turning the pipe into the retainer.

After the pipe has been turned under the old retainer, I screw a cap-screw into the end nut and against the end of the crankshaft. This cap-screw is 3 in. long and 1 in. in diameter. A few turns with a wrench will pull the retainer from the timing chain cover.

6. Axle Stud Removal

by William Thompson, Shop Foreman
H. B. Church Truck Service
Boston, Mass.

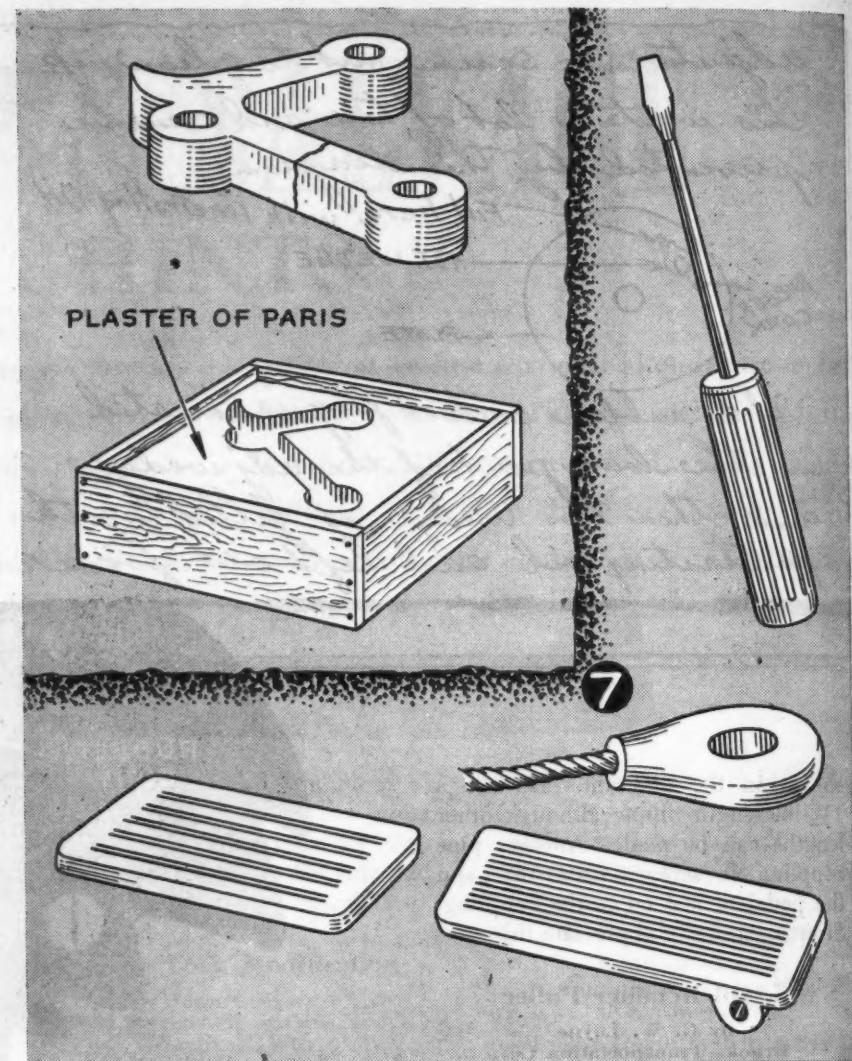
Removing broken studs in hubs has long been a headache to maintenance men everywhere. We have devised a simple jig which reduces the time and labor on this job.

A 3-in. pipe nipple is pressed into one of the holes of an old axle flange. The flange is slipped over the remaining studs with the pipe nipple lined up with the broken stud. The pipe nipple acts as a guide which allows the mechanic to drill the broken stud out with no danger to the threads.

7. Casting Truck Parts

by Jack Bronte
Covey Co., Grass Valley, Cal.

Hard-to-get small truck and shop parts can be rough cast from scrap



metal very easily. We have used aluminum, pot metal, lead and other low melting alloys with success.

The broken part is cemented together and used as a pattern for the outline of the new casting shape. It is inserted in plaster of Paris as shown in the diagram. Metal is put into a heavy ladle and melted by a gas burner or a gasoline blast torch. It is necessary to surround the flame and ladle with a few fire bricks so that heat will be held in. When the metal melts, it is poured into the recess in the plaster. The plaster is chipped away, the part is machined and bored as desired. Left over metal can be used for casting tool handles or even small tools as illustrated.

We have successfully cast the following parts and tools: cab step plates, throttle foot plates, radiator grille bars, steel cable terminals, lead sheets for use on the acid battery tables, mallets of aluminum and

screw driver handles of aluminum. The list is by no means complete. Many of these parts work as well as new ones—which in some cases are unobtainable today.

8. Pressure Filler Tank

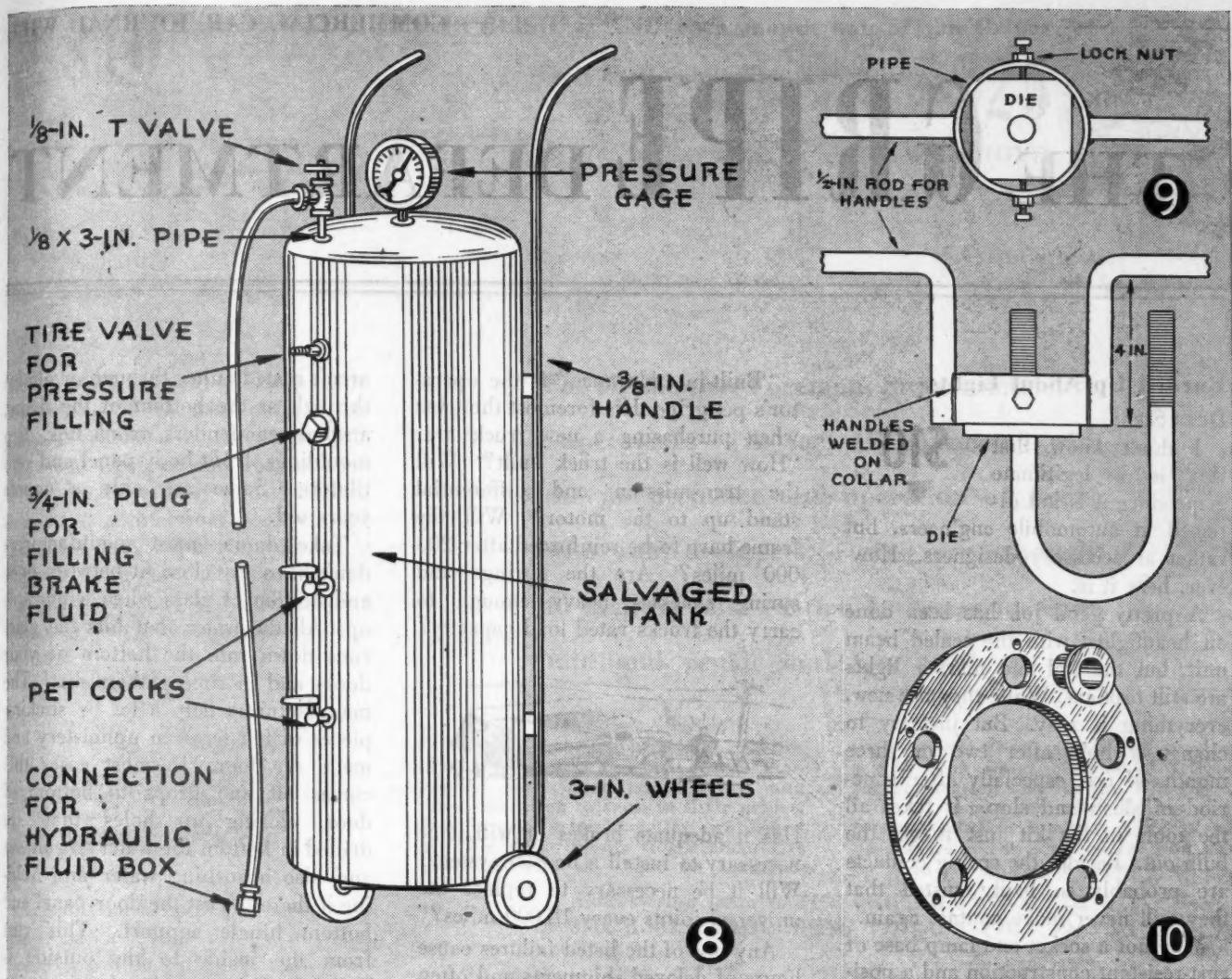
by L. Zins, Purchasing Agent
St. Paul Terminal Warehouse Co.
St. Paul, Minn.

Here is a drawing of a hydraulic fluid pressure tank which we made in our shops. It can be made very easily and of discarded parts that lie around the shop. It is much handier than similar equipment I have seen.

9. U-Bolt Threader

by Elmer Holsworth
Middlesex Transportation Co.
New Brunswick, N. J.

In threading and rethreading large U-bolts we use a die holder which I have devised. I think it has many advantages and would like to pass it



8

9

on to other readers of **COMMERCIAL CAR JOURNAL**.

I use a collar cut from a pipe with inside diameter of the same size as the outside diameter of the die. I make handles of $\frac{1}{2}$ -in. rod and weld these to each side of the collar. They are bent at right angles 4 in. from the welded end so that the handles are parallel with the die. They will then clear the U-bolt. I drill a hole in opposite sides of the die holder and insert a set screw with a lock nut to hold the die in place. This tool is really handy in work of this sort.

10. Wheel Salvage

by Howard E. Wood, Maint. Supt.
N. Y. State Dept. of Public Works
New York, N. Y.

Considerable difficulty has been encountered with disk wheel failure due to drivers allowing the wheel nuts to become loose. The results

are wheel stud breakage and elongation of the bolt holes. We salvage such wheels by the following process.

First the bolt holes in the wheels are welded on both sides to more than replace the metal worn away. This metal is then ground off to a flush surface.

A round steel plate made with a slight shoulder to correspond with the diameter of the wheel hub is placed against the wheel center. This jig has holes drilled around its diameter to correspond with the correct holes in the wheel. They are of the diameter of the largest part of the inner wheel stud.

A doweled bushing, reducing this size to the diameter of the stud proper is inserted into the jig hole. A drill is run through the bushing to obtain exact center of the holes for the wheels. Then the bushing is removed and the larger drill, sharpened to the angle of the stud and

nuts, is run through the jig to a stop on the drill press to insure the chamfer of all holes being of equal depth.

The wheel is then turned over, the fixture lined up and the same procedure carried out on that side. The bushing and the pilot is used to find the center of the hole.

Wheels otherwise condemned to the scrap pile can be salvaged very easily by this method. The jig can be made in any shop equipped with a drill press and lathe.

11. Oil and Fuel Line Tool

by M. R. Shuck, Garage Foreman
Railway Express Agency
Sioux City, Iowa

A handy tool for cleaning plugged gas or oil lines is a speedometer cable. It will follow the curves without jamming in the line. Corroded lines especially can be cleaned in jig time; in places where the air cleaning method would not work.

THE GRIPE DEPARTMENT

Burned Up About Lights

DEAR SIRS:

I don't know that this is a legitimate gripe since it is not directed at automobile engineers, but rather at accessory designers. However, here it is.

A pretty good job has been done on headlights, with the sealed beam unit, but the tail and marker lights are still orphans. While they are new, everything is rosy. But just try to change a bulb after two or three months of use, especially after a period of slush and slop. It takes all the tools in the kit just to get the bulb out. Besides the spring contacts are probably so badly rusted that they will never make contact again.

Why not a socket and lamp base of rust-resistant construction and a positive contact. For instance, a screw-type base such as is used on house lighting bulbs, with enough base projecting above the socket to get a grip on if the bulb breaks off.

LEWIS CONDON, Service Mgr.,
Rainbow Bread Co.,
Brookfield, Mo.

Gripes Boiled Down

DEAR SIRS:

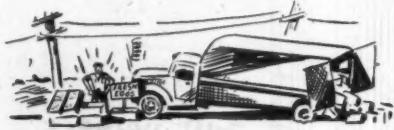
I have read the many Gripes published in your Gripe Department and when summing them all up there are two that appear to be the most consistent. They are "inaccessibility" and "built-in endurance." These two gripes combined make up one big gripe which only the manufacturers can correct.

"Inaccessibility" is the mechanic's pet gripe and his reasons are well founded. The average mechanic likes his work and likes to do it well. However, he must have patience, and patience requires time and time being a scarce item creates the pet gripe of "inaccessibility."

\$10



"Built-in endurance" is the operator's pet gripe. His foremost thoughts when purchasing a new truck are: "How well is the truck built? Will the transmission and differential stand up to the motor? Will the frame have to be reinforced after 20,000 miles? Are the springs and spring shackles heavy enough to carry the trucks rated load capacity?



Has it adequate brakes or will it be necessary to install a booster system? Will it be necessary to replace the universal joints every 10,000 miles?"

Any one of the listed failures cause hours of delayed shipments and often a delayed shipment is more serious than no shipment. Therefore, may I suggest to the manufacturers, that when building a truck, they equalize the chassis with the power of the motor to produce "built-in endurance."

MILO R. SHUCK, Garage Foreman,
Railway Express Agency,
Sioux City, Iowa.

\$10



Body & Painting Faults

DEAR SIRS:

This gripe is a little different than the ones I have read. One of the worst things I think can happen to a body is to have it rust out at the bottom. Most car, truck and trailer bodies have traps for water built in them.

We will start with car and truck manufacturers first. How many cars and trucks on the road do you see that are from four to six years old that



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aren't rusted either through or almost through at the bottom of the doors, around rear fenders, trunk lids, drip mouldings, front body panel and ventilators. Some are only a couple years old.

Take doors—most manufacturers don't have any close fit between door and bottom of glass when window is up. All the water that hits the glass runs down into the bottom of your doors and in time gathers dirt. The manufacturers help a lot by sticking pieces of felt between upholstery and metal on door. In most cases this comes off and drops to bottom of door, closing up holes that are drilled in bottom for water to run out and also absorbing water and holding it there to rust the door panel and bottom hinge support. This rust from the inside to the outside is worse than that starting from outside because on outside it can be seen and painted. But when you notice it coming from inside, it is too late to paint it. It is generally necessary to install a new panel or patch with metal or solder fill. In most cases holes are not big enough and not enough of them. Holes should be at bottom of panel itself so it doesn't rust in the bend up.

Ventilators and trunk lids also are a bad rusting point. The manufacturers also help by using a sponge rubber around the body so that the lid will fit better. In most cases it is what the name implies. Sponge soaks in all the water it can and holds it there so it will rust the metal. Why couldn't this be a smooth-surfaced rubber that repels water instead of one that soaks it in?

Now for painting—the job looks good when new but after a time the drip mouldings start to rust and around the corners and bottom of doors and edges of door where the paint mist has barely covered. These places should have an extra coat or

PAY **\$10** FOR EVERY GRIPE PUBLISHED AND each month one of the Grips

will receive an extra award of a **\$25**

WAR BOND



two of paint instead of skimping it. My opinion of the best paint to repaint is enamel—a three-coat job. First coat light, second coat as soon as first becomes tacky and third coat as soon as second coat is set enough that third coat will not sag or run in the way. The paint all dries together and makes a good glossy finish and the extra coat makes it hold up twice as long.



Custom built bodies in most cases are as bad and some are worse. When bodies are built with oak frame work and covered with steel the sheets should be coated on inside with an aluminum paint or other good grade of covering. Most metal is bent around the corner at the bottom of the bodies about $\frac{3}{4}$ to 1 in. and nailed on bottom. This causes a trap for moisture and body sweat. For instance, hauling things in a body that is warm creates a sweat on inside of body panels and the sweat rolls to the bottom of the body and can't get out. In lots of cases bodies are built lower than the front of chassis on the sides and rear and nothing to keep the water from seeping between the bottom of the body metal and the oak frame.

On the fronts of the bodies, some butt their joints of metal instead of a good lap. In butting they put a moulding over them and expect that to do the job. It looks okay but when the water lays back of mouldings and rots the wood you have a swell job replacing it and also the metal.

The windows are generally set in sponge rubber that holds a lot of water to rust and rot things out. If

For Mechanics, Foremen, Superintendents, Supervisors—in fact all connected with the maintenance and operation of fleets, who want designers to give more thought to making post-war trucks easier to maintain and repair and less costly to run

"The Gripe Department" invites fleet mechanics and all others connected with fleet maintenance and fleet operation to send in their gripes. For every gripping letter published in this department, COMMERCIAL CAR JOURNAL will pay \$10. In addition,

Address your letter to THE GRIPE DEPARTMENT, COMMERCIAL CAR JOURNAL, PHILADELPHIA 39, PA.

the best letter each month will receive a \$25 War Bond. Choice of letters for publication and for the War Bond will be made by the Editors of COMMERCIAL CAR JOURNAL. Choice will be determined by the content and not by style of writing or appearance.

the body manufacturers would only look at some of the jobs they made several years ago and correct their mistakes of trapping water in bodies and use a different rubber that don't absorb so much water and put paint protection on inside of metal and under mouldings, it would help a lot. In some cases, mouldings are put on bodies without a bit of paint under them and the bodies in about a year start rusting back of mouldings.

Some trailer manufacturers also do the same thing. I am thinking now of a corrugated steel body that rusts out on the bottom more than any I have ever seen. If you are in the market for a trailer look at some on the road about five years old that are all patched up on bottom, welded all over with patches, and lay off that type unless the design has been changed.

BUDD SHAULIS, Garage Supt., Continental Baking Co., Norristown, Pa.

\$10



After a critical examination (from the front office standpoint) of the over-all structure of our commercial cars, we discover that, along with revenue tonnage, we're transporting non-pay mechanical hitch-hikers—ton-miles of them.

Here is a heavy steel rear axle housing. It weighs in, stripped to the waist, at or around 350 lb. A good axle housing it is, and one turned out as only American technical skill

(TURN TO PAGE 57, PLEASE)

SERVICE MANUAL GRIPES

What's Good for the Goose . . .

DEAR SIRS:

I have read a great deal in the COMMERCIAL CAR JOURNAL about Service Manuals and I would like to express my thoughts.

\$10

The Service Instruction Manual that comes with every car and truck is just to familiarize the owner with his car or truck but the general garage mechanic has come to depend a great deal upon this manual to get his knowledge as the new cars and trucks are produced, as this is about the only direct source except by practical experience, and of course I do not want to leave out your COMMERCIAL CAR JOURNAL, which is a great help.

There are several car and truck manufacturers who put out a loose-leaf service manual for their respec-



tive dealers. Some of these manuals are very thorough when it comes to explaining the different parts of the vehicle and how it should be repaired in the shortest possible time. From time to time, if there has been any trouble encountered anywhere in the United States, they send out a bulletin covering same and how to correct and make repairs.

I think all automobile and truck manufacturers could get together and make a more complete and universal manual, using simple mechanical language. And when they are dealing with clearances, such as adjustments in differentials, or piston clearances and bearings in motors, have them to be very specific and give all data pertaining to same. When assembling motors, transmissions, differentials,

What's wrong with the Service Instruction Manuals, and bulletins that are issued by automotive manufacturers? What changes would you like to see made in postwar service manuals?

New postwar vehicles, parts, accessories and equipment will require new service instructions. Now is the time for mechanics and shop foremen to tell factory service men how those instructions should be prepared for maximum usefulness.

\$10 FOR A LETTER — MAYBE A \$25 WAR BOND, TOO

For every letter published COMMERCIAL CAR JOURNAL will pay \$10.00.

In addition, the best letter each month will receive a \$25 War Bond. Choice of letters for publication and for the War Bond will be made by The Editors. Choice will be determined by content and not by style of writing or appearance.

Address your letter to THE GRIPE DEPARTMENT, COMMERCIAL CAR JOURNAL, Philadelphia 39, Pa.

or any unit, draw a picture showing just where each part belongs.

Some automobile companies have factory-trained service men who travel over the nation holding schools to teach the dealers' mechanic how to service their equipment. Now if all automobile and truck companies would extend their loose-leaf service manual to all reputable garages and fleet garages and keep them up to date, and also allow the general garage mechanic and fleet men to attend their schools, I think they would really accomplish something. I know it would cost a little for all of this service, but in the long run it would bring a better understanding and closer working harmony in this field of industry. The dealers would also be compensated by having more sales coming from the general garage and fleet men and I know there would be less gripes from the mechanics as they would know in advance how to tackle some of these so-called contortionist jobs, instead of finding out the hard way.

J. A. MILLER, Foreman
Southwestern Transportation Co.,
Shreveport, La.

Layout for a Mechanic Must

DEAR SIRS:

Factory service instruction manuals and bulletins are important and necessary tools in automotive maintenance. Good manuals are useful and practical. A mechanic in order to do a good job must refer to the service manual. The manual aids the mechanic in doing his job easier, saves many man-hours, prevents gripes.



**\$10
AND
\$25
BOND**

Also it is a well known fact that some service men expect the impossible from the service manual. We have in our files all kinds of so-called service manuals and bulletins. We find two that can be called service instruction manuals. The rest are the tossed-into-the-corner variety. They are printed on poor grade of paper in very small print, difficult to read, lacking detail, necessary data and specifications, omitting illustrations, exploded views, photographs, circuits, and contain pages of parts

numbers. We believe parts numbers belong in the parts book and not in the service instruction manual.

Often the manual will show a photograph of holding fixtures, pullers and other special tools used by the factory in disassembly or assembly of some unit, and fail to mention in the manual the name and address of distributor or manufacturer of such tools. Such information would be a time-saver to a fleet superintendent who would like to purchase such tools or equipment.

Also manufacturers of shop equipment, such as air compressors, jacks, battery chargers and other equipment, failed in the past to give adequate instructions in the manuals for maintenance and repair of such equipment.

Therefore, we suggest and hope that the postwar service manuals will

be useful, instructive, bigger and better. Here's my idea of what a manual should be like:

1. Manual to cover car or truck for the year.
2. Size of service manual to be a popular 8 x 11 in.
3. Cover of manual be made of plastic or other durable material.
4. The manual have screw and nut for filing bulletins and supplements.
5. Bulletins and supplements be perforated for filing.
6. Good grade of paper.
7. Easy to read print.
8. Printed in the mechanic's language, easy for one to understand.
9. Colors used to simplify illustrations, circuits.
10. Contain brief description of

construction, necessary data, specifications and overhaul of various units of the vehicle.

11. Ample illustrations, photographs and exploded views.
12. Name and address of manufacturer of tools, holding fixtures, pullers, etc., used in the manual.
13. Fully indexed.
14. For maximum usefulness a real service manual should contain service instructions only.
15. Supplements and monthly bulletins should contain all changes made in parts and installations.

We are willing to pay for a good manual.

FRANK E. SEFTCHICK,
Swift & Co., Dairy & Poultry Div.,
Brooklyn, N. Y.

The Gripe Department

(Continued from page 55)

can turn it out. And yet, great bulk plus weight is not enough—or should I say, too much?

Alongside of our 350 lb. axle housing lies an alloy housing of duplicate dimensions. This unit does the same job, is easier handled in the shop, and tips the scale at 150 lb. less. This dead horse of 150 lb., all unsprung weight, has been "riding the roads" on our trucks altogether too long. Among many other things this weighty parasite has helped to pound our machines to pieces and flatten our tires like the cream puff on the fat man's cushion. It costs money and we don't like it.

This hitch-hiking, dead-weight, superfluous 150 lb. when transported 13 odd miles, adds up to a ton-mile. In a year of road service this ton-mile pyramids into something that the front office looks at like a snake happily wound up in the do-nut jar.

A compilation of the total parasite weights hauled around, just for fun, on commercial cars make a list this long and that wide. In plain words: it's one of the termite nests in our wooden cash drawer.

JACK BRONTE,
Covey Co.,
Grass Valley, Calif.



Eleven Suggestions

DEAR SIRS:

While I am in the mood I may as well send this for the Gripe Department.

I would like to see on postwar trucks a decent place for carrying the spare wheel and tire. As they now are, nothing could be meaner and more contemptible than those that are hung openly and flat down under the truck to receive all the road splash. It is a tough enough job to change one of them in the shop let alone out on the road. I would suggest a tight compartment either under the floor or on top of the floor with a special door so as to be easy accessible from the outside, the tire and wheel to slide in flat down. A few other things that should be improved on are as follows:

Easier access to electric wiring un-

\$10
▼

der cowl and all fuse clips to be soldered for positive contact instead of being held by just a rivet.

Batteries that are mounted under the truck should be protected from flying gravel, the carrier to be $\frac{1}{8}$ in. steel instead of $\frac{1}{16}$ in.

Door latches and striker plates should be case-hardened for longer wear on commercial trucks. This could also go for hinge pins.

Easy access to spark plugs and distributors as they must be checked frequently in preventive maintenance.

Longer wearing material in upholstery for commercial trucks.

Less quantity and more quality in mufflers and exhaust pipes.

Easier access to nuts and bolts of manifolds. At least enough room to get a special wrench on them.

Brake cables should be sealed in rubber against moisture and road splash. And permanently lubricated with graphite or some other form of dry lubricant.

Tail and stop light to be built like sealed beam unit. And should not be mounted on rear doors of trucks where it takes a beating every time the door is opened and closed.

Shock absorber connecting links should use heavier pins to give more wearing surface. Should be not less than $\frac{1}{2}$ in.

A. C. LEER,
Musser Bakery,
Somerset, Pa.

free PUBLICATIONS



A selected list of the latest in literature—books, pamphlets, catalogs—chosen to help fleet operators solve maintenance and operating problems

L198. Engine Bearing Manual

A 96-page full-size bearing manual has been compiled by the technical staff of a leading bearing manufacturer in the interests of the fleetman. The manual is graphically illustrated and contains valuable information that will aid the mechanic in maintenance as well as the operator who wants better bearing service.

Rapid deterioration of bearings is attributed to several factors, overloading, insufficient lubrication, excessive heat and mechanical abuse. The booklet discusses these factors in detail.

Among other subjects covered in the clearly written text are: The Bearing in Action, Engine Wear, Bearing Installation Procedure, Analyzing the Causes of Bearing Failure; 14 pages consist of tables giving every possible dimension including inside and outside diameter, length, wall thickness, in fact all data necessary for checking and ordering engine bearings. Additional tables give crankshaft dimensions, tolerances and oil clearances for all makes of cars, buses and trucks.

This manual should be in the hands of all who are connected with automotive maintenance. A copy will be sent free to those writing L198 on the postcard.

L210. Tire Repair Booklet

The full title, "Illustrated Guide for Treading and Repairing Tires and

EXTRA SPECIAL

This month we are reviewing five of the outstanding free literature offers published in the last few months. Many readers may have overlooked some of these offerings or may have failed to see the possibilities in them. Therefore, here are the highlights in review, with the same order numbers. Use the free postcard for your copies.

Tubes," just about explains the booklet. It should be the answer to the operator's tire repair problems. This 8 x 11-in. booklet contains 40 pages of timely information on the fundamentals of modern treading and repair. It is written simply and is profusely illustrated.

One chapter is devoted to the inspection and selection of tires for repair. Then the booklet discusses the preparation of the tire for treading, applying the camelback, molding new tread and the final inspection. Another division is devoted to tube and valve repair, discussing cold patch as well as vulcanized tube repair. Detailed photographs show each step and will make the job easy for the serviceman.

Since synthetic tires and tubes offer problems in vulcanizing, this booklet will be especially well received in the shops.

A copy will be sent to any fleet operator or maintenance man writing L210 on the free postcard.

L218. Ball Bearing Portfolio

Fleetmen, supervisors, mechanics, here is an offer you can't afford to overlook. It is probably the greatest amount of valuable information in one offering we have presented. It is a folio of 27 technical bulletins compiled into a file-size portfolio and offered free to the industry. The theme of the publication is the conservation of ball bearings, a practice of great importance now.

The bulletins range in size from 4 to 28 pages, the print is large, and the detailed illustrations on quality paper clearly illustrate each procedure. Information on many subjects is given in clear, concise style and will be useful to any maintenance man.

Subject matter covers storing, washing, assembly, disassembly, with emphasis placed on cleanliness as the first rule of bearing maintenance. Other bulletins feature various types of bearings and several kinds of oil seals, every type found in automotive equipment. One bulletin covers grinding, another fitting of shafts and fillets, another adjusting of the pre-loaded type.

The last bulletin is composed of interchangeable tables for all models and sizes of ball bearings, a feature that will be found valuable in any shop.

This portfolio is yours for the writing of L218 on the free postcard.

(TURN TO PAGE 170, PLEASE)



new PRODUCTS

The newest in replacement parts, accessories, shop equipment and supplies.

For more details of products described or advertised, use free postcard

P88. Ignition Point Tool

The new K-D Aligning Tool manufactured by the K-D Mfg. Co., Lancaster, Pa., will fit all makes and models of distributors. It has been machined carefully to the correct size and can be used to align both stationary and movable breaker arm contact points in all types of distributors. Measuring 4 1/4 x 3 5/8 in., the tool enables the adjusting to be done quickly and accurately.

Use Free Postcard For More Details.

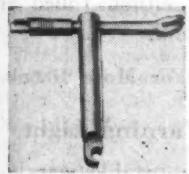
P89. New 8-in. Grinder

The Baldor Electric Co., St. Louis, Mo., has developed a new grinder, an 8-in. size, No. 8100 series. According to the manufacturer, the outstanding features of this new development are: a substantial 3/4-in. arbor, exhaust type guard and quality 8 x 1 in.-Aloxite wheels.

The end bells are tapered providing wide clearance between the wheels and the motor frame. When not connected to the exhaust system, the circulatory action of the wheel tends to carry dust through the exhaust opening away from the operator.

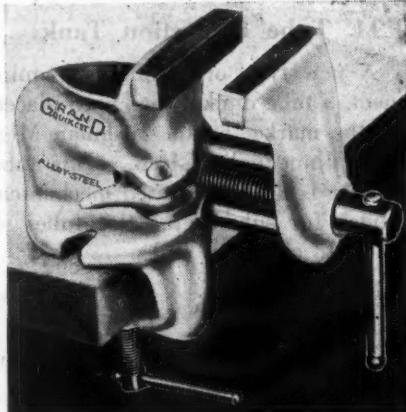
Grinders are available in 1 and 3/4 hp. Net weight, 85 lb.

Use Free Postcard For More Details.



P90. Quick-Action Vise

A new type quick-action machinist vise has been announced by the Grand Specialties Co., Chicago. Known as the Grand 3-in. Quickset Alloy Steel Machinist's Vise, it is manually operated but eliminates running the screw in or out to close or open. It is claimed that this speed vise can be set and closed quickly by simply pushing the body of the free



jaw, which slides on ratchet screw and two precision guide rods. It tightens with a turn of the handle.

The vise is equipped with a trigger release pawl with 3/4 in. of thread which holds the hardened screw under spring tension. It is said to open instantly to full 3 in. by pressure of thumb on trigger release after tension has been eased by single turn of the loose-proof handle.

The Quickset vise is spatterproofed for welding use with copper plat-

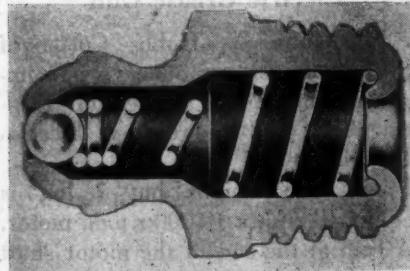
ing and rust-proofed as well. It is equipped with bottom screw clamp for shifting to any bench, or it can be bolted down for stationary use.

Use Free Postcard For More Details.

P91. New Type Grease Fitting

The Lincoln Engineering Co., St. Louis, Mo., announces a new type grease fitting known as the Bullneck. This fitting was designed to incorporate the most desirable characteristics of various types of fittings so as to permit standardization of one type as well as use of one type of coupler.

In this fitting the ball check is flush with the top to prevent dirt and foreign matter from lodging in the opening and being forced into the bearing. The new design provides a larger inside diameter permitting a greater volume of lubricant flow. The bearing pad permits even distribution of wear on both the coupler jaws and the fitting itself. The ball-check



spring is non-collapsible and cannot be forced through the fitting.

(TURN TO NEXT PAGE, PLEASE)

NEW PRODUCTS

(Continued from Page 59)

USE THE POSTCARD = BETWEEN PAGES 58 AND 59



The Bullneck fittings are machined from steel stock bar and have a heavy zinc plating to withstand severe usage. They can be used with all standard type couplers.

Use Free Postcard For More Details.

P92. Spring Tester

The Rimac Spring Tester No. 67 is now beginning to appear on the market after serving the Armed Forces for the last several years.

In that period it has been improved with a larger dial face, closer tolerances and more rugged construction.

Mechanical throughout, it measures valve spring tension by the deflection of a special alloy steel plate; readings are controlled entirely by this deflection. An adjustable stop is included for quick testing of an entire lot of springs for any one job. The instrument, manufactured by Rinck-Milwaine, Inc., New York, will test any spring up to 2 in. in diameter, 5 in. in length with a maximum tension of 250 lb.

Use Free Postcard For More Details.

P93. Electric Grease Gun

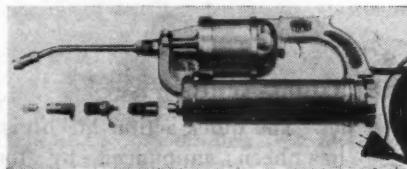
The John W. Hobbs Corp., of Springfield, Ill., announces a new improved all-electric grease gun identified by the trade name Electro-Draulic.

The gun weighs but 7 lb., is equipped with a 10,000 r.p.m. motor. A cam at the end of the motor shaft actuates four pistons forcing the lubricant into the compression chamber developing pressure in excess of 10,000 lb. per in.



The pistol grip and the trigger switch assure ease of handling and absolute control as the discharge stops or starts instantly.

The grease magazine holds 1 lb. of grease and it is claimed a saving of from 25 to 50 per cent of lubricant is effected because the operator has absolute control as to the exact amount of grease expended.

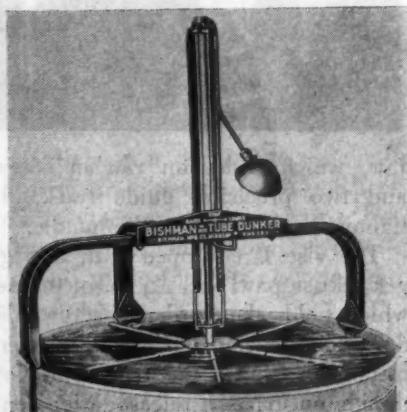


The Electro-Draulic Grease Gun is shipped completely assembled with 20 feet of heavy duty cord, with four adapters which fit all types of fittings. It is available for immediate shipment.

Use Free Postcard For More Details.

P94. Tube Inspection Tank

A new type of automotive equipment, a tube dunker, has been placed on the market by the Bishman Mfg. Co., Minneapolis, Minn. This tube dunker is an air-powered mechanical device for submerging tire tubes in water to check air leaks.



Any tube up to 50 in. in diameter is placed under the eight arms of the device, and air power lowers the

arms and tube into a water tank. Thus the entire tube can be submerged and turned for easy inspection. One control lever operates the rising and lowering of the arms and will stop the submerging at any point desired.

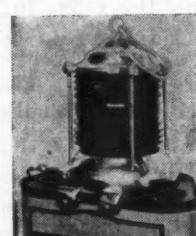
A built-in light is placed conveniently to show up the tube in water. It can be connected to a standard outlet box. The two front submerging arms are removable and may be pushed back to allow room for quick entry or removal of the tube from the tank.

The tube dunker can be attached to any tank from 40 to 52 in. in diameter. Clamps at either side hold the frame securely to either rolled or angle rims of the tank.

Use Free Postcard For More Details.

P95. Portable Warning Light

A red, flashing, portable warning light has been designed by the Electric Cord Co., New York. The body



of the light clamps to an ordinary hot-shot battery, or it can be used with conventional dry cells. Other models are mounted in a box so that they can be used with a rechargeable wet battery.

The light is equipped with an ordinary automobile tail light bulb and is visible for more than a mile in all directions. The light body is of rust-proof metal and fitted with a 3 1/2-in. lens and a housed-in flasher. It is 11 in. in height and weighs 9 lb.

Use Free Postcard For More Details.

P96. Steam Cleaning Compound

A new heavy-duty steam cleaning compound, marketed under the name of Steam-Off, has been developed by (TURN TO PAGE 162, PLEASE)

LAUGH IT OFF

with SKAG SHANNON



Hank, the driver for C&T, staggered into the kitchen put his hat in the oven, and fell on his face. His wife, out in the yard picking fleas off the Chow, rushed in, the pooch in her arms.

"Drunk again," she purred. "How'd you get home?"

"You are?" He rolled over, leered owlishly and sat up. "I got the bus. Why?"

"You embustered! You took our car this morning."

Hank reeled to his feet. "I did?"

"YOU did!" She handed him the pup.

Thinking was hard, but—"Now I remember." He took a gander at the Chow. "When I got out of the car, I turned to thank the guy for giving me a lift—and he wasn't there."

"Let's go!" Wifie yelled.

Hank took his hat out of the oven; put the pup in. Then he slapped his hat on Wifie's head, and they both staggered out for the bus stop. (Unverified)

no place to accost a girl who lives at 939 Piedmont Street, Phone 2002."

Heard through the open door, switchboard talking with the traffic department stens: "... and what's wrong with Reds?"

"... drive last night ... new roadster ... drove fast ... desert road ... out of gas ..."

"... old story ... then?"

"looked at speedometer ... said ..."

"... the louse ...!"

"... you ... did he ...?"

"laughed ..."

"And?" swallowing her gum.

"Sixteen and a half miles to the gallon!" he said. Got a can out of the back, put gas in the car, AND DROVE ME HOME!"



Englishman: "I say, what are they doing?"

American: "They're dancing."

Englishman: "They get married later, don't they?"

Son: "Mom, I have a girl now that has everything."

Mom: "What do you MEAN, everything?"

Son: "Well, she owns a typewriter, she has a full set of new tires on her Ford and her old man owns a gas station."

Two WAVES were en route to California. As their train slowed down, their car stopped opposite an orange packing plant. "Did you ever!" said the brunette. "Look at that sign—*SUN-KISSED NAVELS*—must be Hollywood."



Sergeant: "What's the first thing you do when cleaning a rifle?"

Ex-Truck Driver: "Look at the number."

Sergeant: "What has that to do with it?"

Ex-T. D.: "I want to be sure I'm cleaning my own gun."

A trucking company (which shall be nameless) was having too many collisions between cross traffic and trucks moving out from loading platforms because of a blind corner. To counteract the problem, the personnel department issued the following bulletin:

"Until further notice, when two trucks approach each other at blind corner of warehouse, they shall both come to a full stop, and neither shall proceed until the other has passed."

Irate customer entering a used truck lot: I bought a truck from you two days ago. You said if anything went wrong, you'd replace the broken parts."

"Sure," said the robber, taking in the arm in the sling, the foot in a cast, and the busted nose "but you heff to lif the braken p'rts mit us for kips. I've got to obey the lousy WPB."

The rooming housekeeper was breaking in a new girl. Exasperated at the maid's dumbness, she yelled: "If you got nothing better to do, go wake up that guy in No. 4."

The girl was gone some time; returned looking flustered and poking at her hair. "That man was sure hard to waken. I finally had to go in and shake him."

"Good God!" the r.h.k. yelled; "Don't you know enough never to go into Dixie's room? That mug is a truck driver."

"Well, Mam, now I know what they say about Dixie is true."

She: "Whenever I'm in the dumps, I get myself another hat."

He: "I wondered where you got them."

DOGS IN SIBERIA ARE THE FASTEST IN THE WORLD—BECAUSE THE TREES ARE SO FAR APART. (PICK-UP DRIVER)



UPS Driver: "Say, baby, going my way?"

Cute Trick: "Sir, the public street is

Batting 1.285

on BATTERY CARE

Supply-wise fleet operators are going all out

on battery conservation. To that end, these

pages briefly summarize the most important con-

servation pointers. Carefully observed, they

will insure maximum and trouble-free service

FREEZING RANGE

The temperatures at which batteries of different specific gravity will freeze are as follows:

Corrected Specific Gravity of Electrolyte	Temperature At Which Battery Freezes
1.100	+ 18° F.
1.185	— 8° F.
1.255	— 60° F.
1.285	— 96° F.

Discharged new batteries will freeze as quickly as similarly discharged old batteries. Prevent freezing. Recharge when specific gravity drops to 1.225.

SELF-DISCHARGE

The rate of self-discharge in a battery accelerates as temperature increases, as shown in the following table.

Battery Temperature	Time Required For Battery To Discharge Completely
*110° F.	1 Month
100° F.	2 Months
80° F.	4 Months
32° F.	8 Months

* The temperature of batteries exposed to the direct rays of the sun is frequently 110 deg. Fahr. or higher.

SIX BATTERY TROUBLE-SHOOTING POINTERS

1. SHORTED CELL

Check for cracked cell partition or worn insulation. Replace container or reinsulate.

2. BATTERY HEATS ON DISCHARGE

Discontinue charging and allow battery to cool. Resume charging at a low rate. See suggested charging hook-up in diagram at right on next page.

3. BATTERY DOES NOT HOLD CHARGE

Check generator charging rate. Look for excessive starter draw, defective switch or small electrical loss in wiring due to break in insulation or oil-soaked con-

dition. If these inspections do not reveal the source of trouble, open battery and check for cracked cell.

4. EXTREMELY SULPHATED BATTERIES

Charge at low rate. If this does not correct condition, battery must be replaced.

5. OVERCHARGING

Indicated by frequent need for water. Adjust generator and regulator charging rate.

6. CRACKED OR LEAKING CONTAINERS

Replace container and recharge battery. Adjust electrolyte as required.



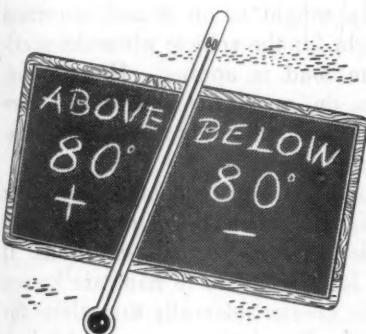
NECESSARY "NINE" FOR THE CONSERVATION TEAM

1. Add water as required. Maintain electrolyte level $\frac{3}{8}$ " above separators.
2. Keep the battery charged. Recharge when specific gravity drops to 1.225.
3. Keep the top of the battery clean.
4. Replace worn or defective battery cables.
5. Keep battery cable terminals tight.
6. Remove corrosion on carrier and terminals with ammonia or soda solution.
7. Apply grease or vaseline regularly to terminals.
8. Keep holdowns tight to assure that battery fits snugly in battery carrier.
9. Reflame or reseal, as necessary, to prevent loss of electrolyte through cracks which may develop in sealing compound.

THE SCORE ON SPECIFIC GRAVITY READINGS

Hydrometer Readings	Specific Gravity Indicates	Recommended Procedure
1.270 to 1.300*—Specific gravity of cells varies less than 15 points.	Battery fully charged.	Battery is in serviceable condition.
1.225 to 1.270—Specific gravity of cells varies less than 15 points.	Battery partially discharged.	Test in two weeks to see if state of charge is improved.
1.224 or lower—Specific gravity of cells varies less than 15 points.	Battery half discharged or more.	Recharge battery.
Specific gravity varies more than 15 points. Specific gravity of at least one cell above 1.200.	Weakness in low cells.	Recharge battery and make capacity test.
Cells dry. Specific gravity readings cannot be obtained.	Battery probably being overcharged.	Add water. Check, and, if necessary, adjust generator and regulator charging rate. Test in two weeks.

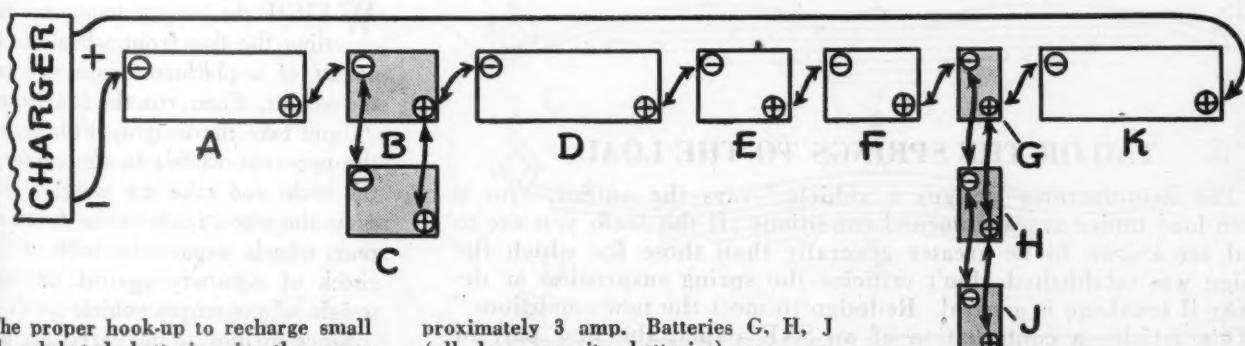
*NOTE: A hydrometer reading of 1.300 or more indicates an excess amount of acid in the electrolyte solution. To correct, remove some electrolyte with a hydrometer and add water. Charge the battery for one hour and test again. Repeat if necessary to obtain a specific gravity of 1.280 to 1.290, corrected for temperature.



CORRECT HYDROMETER READINGS TO TEMPERATURE

Hydrometer readings are correct only when the temperature of the electrolyte is 80° F. Above 80° F., hydrometer readings will be lower than actual specific gravity (to correct, add two points for each five degrees over 80° F.). Below 80° F., hydrometer readings will be higher than actual specific gravity (to correct, subtract two points for each five degrees below 80° F.).

HOW TO RECHARGE SULPHATED BATTERIES



The proper hook-up to recharge small and sulphated batteries in the same series with the larger, and healthy batteries is indicated above, using a 6 amp. charger operating at full capacity or with a 12 amp. charger operating at 6 amp.

Battery A (12 volt) receives full 6 amp. charging rate. Batteries B and C (both sulphated) are connected in parallel and divide the 6 amp. charging rate between them, each receiving approximately 2 amp. The other batteries receive the full 6 amp. charge.

Connecting the small and sulphated batteries in series parallel increases the capacity of the charging line to more than 12 batteries. Therefore, mere batteries (not indicated in the diagram) may be added to the series section of

the circuit. These additional batteries will receive the full charging rate of 6 amp.

When a 12 amp. charger is used at full capacity, the number of batteries in series-parallel groups must be doubled to obtain the reduced charging rate.

REDESIGN THE

LOAD DISTRIBUTION			
SCALE WT. OF EMPTY VEHICLE	FRONT	REAR	FRONT & REAR
SCALE WT. OF EMPTY VEHICLE	}		
A EMPTY WHEEL WEIGHTS	FRONT	REAR	
B ESTIMATED UNSPRUNG WEIGHT	"	"	
C NET SPRUNG LOAD (EMPTY)	"	"	
$\frac{1}{2}C$ NET SPRUNG LOAD PER SPRING	"	"	
$\frac{\text{PAYLOAD} \times R}{W B} = \text{PAYLOAD TO FRONT SPRINGS}$			
$\frac{\text{PAYLOAD} \times F}{W B} = \text{PAYLOAD TO REAR SPRINGS}$			
D PAYLOAD DISTRIBUTION	FRONT	REAR	
$\frac{1}{2}D$ PAYLOAD DISTRIBUTION PER SPRING	"	"	
$\frac{1}{2}C$ NET PAYLOAD DISTRIBUTION PER SPRING	"	"	
GROSS LOAD PER SPRING	"	"	
DESIGN CAPACITY PER SPRING	"	"	
DIFFERENCE (+ or -)	"	"	
ADDITIONAL BY RAISING ARCH	"	"	
ADDITIONAL BY ADDING STEEL	"	"	

Fig. 1. An 8½x11-in. form containing all information necessary for determining spring carrying capacity with formulas used in designing springs for greater capacities. An example, applied to redesigning the front spring of a tractor, is given on page 66

TAILOR THE SPRINGS TO THE LOAD

"The manufacturer designs a vehicle," says the author, "for a given load under average normal conditions. If the loads you are to haul are known to be greater generally than those for which the design was established, don't criticize the spring suspension or designer if breakage is general. Redesign to meet the new conditions."

This article—a continuation of an SAE paper, the first part of which was published last month under the heading "Five Reasons Why Chassis Springs Break"—takes in both normal and abnormal conditions. It tells the fleet operator how he may determine the present net unsprung load of his vehicles, how to calculate gross load per spring, and similar fundamental factors.

With the load to be carried known and the designed capacity known, the author then points out how each fleet operator may determine how much more capacity must be built into the spring to correct chronic breakage.

GENERAL breakage throughout the spring is a sign of just not enough capacity, usually. But how can we tell that? A simple procedure that is practical can produce paying results but, first, remember this: The spring designer uses a certain load factor in arriving at the design of a spring to give it a certain height for the vehicle when only the body weight is on it and a certain height for the vehicle when the maximum load is applied. He also figures on a certain clearance before metal-to-metal contact is made in extreme deflection.

In other words, the manufacturer designs a vehicle for a given load under average normal conditions. If the loads you are to haul are known to be greater generally than those for which the design was established, don't criticize the spring suspension or designer. Redesign to meet the new conditions. Here is how to do it:

Net Unsprung Load

WEIGH the empty truck by running the two front wheels to the center of a platform scale and take the weight. Then, run the four wheels on and take the weight. Finally, run the two rear wheels to the center of the scale and take the weight. This gives the wheel loads of the front and rear wheels separately with a fair check of accuracy against the total weight of the empty vehicle.

Since springs do not carry any part of the tires, wheels, rims, axles, brakes or the spring themselves, we must estimate the unsprung weight and subtract it from the scale readings to get that part of the empty vehicle that is carried by the springs. A fair estimate of unsprung weight is as follows:

by ROBERT N. AUSTEN

The Iron City Spring Co., Pittsburgh

IN THE SPRINGS

If Breakage Is Chronic

1/2 Ton & Pass. Cars

Front 150 to 200 lb.
Rear 300 to 350 lb.

1 1/2 to 2 Ton Trucks

Front 250 to 300 lb.
Rear 500 to 750 lb.

Heavy Duty & Buses

Front 500 to 600 lb.
Rear 1200 to 1500 lb.

By taking these amounts from the corresponding scale weights, we can tell how much load is on the two front or two rear springs when the vehicle is empty. This is our net sprung load. Simply dividing by 2 gives us the net sprung load per front or rear spring.

Gross Load Per Spring

NOW we apply the payload. This load or weight is not distributed to the front and rear springs in the same proportion as the net loads of the vehicle, but must be determined by the measurements taken of the vehicle. It must be assumed that the body is to be loaded uniformly over its entire area, which is equivalent to applying the entire load at the center of the loading area. There are several simple formulae that can be used, but the simplest is based on the fact that the pay-load carried is distributed to either axle in proportion to the distance from the center of the load to the opposite axle.

If the maximum payload is known, the most direct formula to use is Payload \times F/WB equals payload on the rear springs. F is the distance from the center of the loading area to the center of the front axle. By substituting the distance from the center of the loading area to the rear axle center, the amount of the pay-

(TURN TO NEXT PAGE, PLEASE)

Spring expert gives fleetmen instructions in figuring spring loads and in determining spring sizes that will provide the maximum required payload carrying capacities and to eliminate spring failures

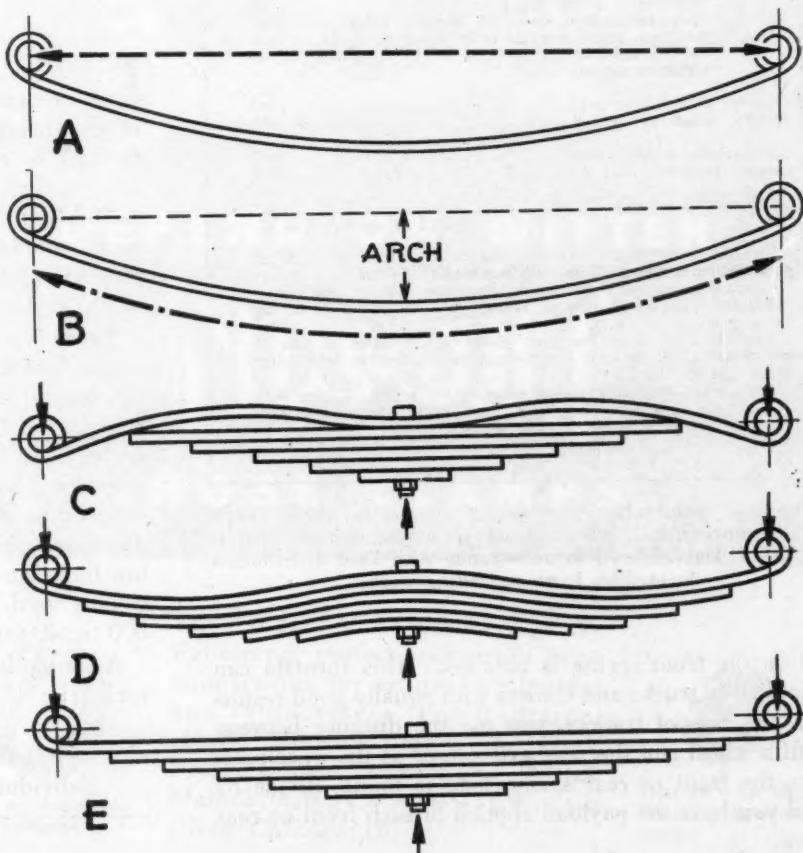
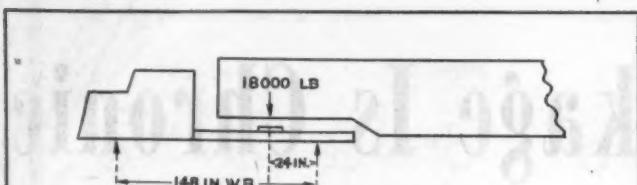


Fig. 2. A. Wrong way to measure the spring. B. Spring manufacturers measure along the plates because shearman cuts them from flat bars. C. With truck loaded, springs appearing like this mean that the second plate is too short. D. All backing plates are too long on this loaded spring. E. Proper spring flexing. Leaves are spaced uniformly

REDESIGN the SPRINGS if Breakage is Chronic

(Continued from Page 65)



		Lb.
Scale weight of unloaded tractor—front wheels.....		4600
Estimated unsprung weight of front axle assembly.....		1000
Net sprung weight of tractor—front.....		3600
Payload distributed to front.....		2918
gross load on front springs.....		6518
or gross load per front spring.....		3259
Capacity of standard front springs.....		2180
Extra capacity needed.....		1079 or 49%
SPECIFICATIONS:		
Standard spring—Weight 58.2 lb., loaded height $\frac{7}{8}$ in. under 2180 lb., free height $\frac{3}{4}$ in., deflection $\frac{2}{3}$ in. at the rate of 830 lb./sq. in.		
Required spring—Loaded height $\frac{7}{8}$ in. under 3250 lb.		
OPTIONS:		
(A)—Free height $\frac{3}{4}$ in., deflection $\frac{2}{3}$ in. at rate of 1240 lb./sq. in.		
Rate increase of 49 per cent requires 49 per cent of 58.2 lb. or 28.5 lb. increase		
Weight of spring needed 86.7 lb.		
(B)—Stress of standard spring under normal load at $\frac{2}{3}$ in. Deflection is 57000 lb./sq. in.		
Stress permitted in spring 39 in. long, 65000 lb./sq. in.		
Additional stress permitted 8000 lb./sq. in. or 14 per cent		
Increase deflection 14 per cent or $\frac{2}{3}$ in. giving 311 lb. additional capacity.		
Capacity of standard spring.....		2180
Capacity added by arching.....		311
Capacity without adding steel.....		2491
Capacity required.....		3259
Extra capacity required.....		768 or 30.8 per cent of 2491 lb.
Standard spring weight 58.2 lb. plus 30.8 per cent or 17.9 lb. gives required spring of 76 lb. with free arch of $\frac{3}{4}$ in.		
Standard spring gage 3 lvs. No. 1 gage, balance No. 2 gage.		
Add long plate 39 in. long No. 1 gage or 7 lb. leaving 10 lb. for No. 2 gage.		
This will make spring too thick. Since capacity varies as cube of leaf thickness, 19 per cent increase can be obtained by substituting No. 1 gage for No. 2.		
Option (C)—Preferably change entire spring to No. 1 gage with one extra leaf more than standard spring and raise arch $\frac{3}{4}$ in. as final design.		

Example of redesigning front spring on tractor, made necessary by moving fifth wheel ahead 12 inches further than it had been. Data figured in accordance with load distribution form, Fig. 1, on preceding pages

load on the front spring is obtained. This formula can be applied to trucks and trailers with equally good results if, in the case of trailers, you use the distance between the fifth wheel and the rear axle center as the wheelbase. When the front or rear spring load is found, divide by 2 and you have the payload applied to each front or rear spring.

Add to these payload figures per spring, the net sprung load per corresponding spring previously determined and you have the gross load required to be carried by each spring.

Spring's Safe Deflection

NOW we know how much each spring is to carry. Your spring manufacturer knows or your spring service station can find out, if it doesn't know, or you can learn from the vehicle manufacturer's service manual, just how much load your present spring was designed to carry. From the rate per inch that is also given for the spring, the deflection through which that load should take it, can be determined.

With the load to be carried known, and the designed carrying capacity known, the difference tells us how much more capacity must be built into the spring to meet the overload condition, and still maintain the designed arch of the spring under gross loads.

Calculating Spring Weight

THE capacity of a spring varies directly as the weight of the spring steel used. So, if the additional capacity needed is, say, 20 per cent as great as the present spring capacity, an additional 20 per cent of the weight of the present spring will give the capacity required, providing the same gage of steel is used.

A simple formula for determining the weight of a spring in the field, when no scale is available or no spare spring is to be had, is: Multiply the length of the spring, measured along the main plate from center of eye to center of eye (See Fig. 1), by the width, by the thickness at center (overall from main plate to short plate inclusive), by .182 and you will have the weight within 5 per cent.

Raising Free Arch

IN SOME cases, for sake of easy riding, part of the extra capacity can be gained by raising the free arch of the spring. A spring carries the same load per inch through every inch it deflects. When we know the load rate per inch of a spring, we can raise it a certain amount, and then the load necessary to deflect the spring that given amount can be taken from the extra capacity we plan to build into the spring before deciding how much steel to add.

There is a limiting factor, however, to watch in raising the arch of a spring, and that is stress. Because a spring not only is at work constantly, even when the vehicle is motionless, but chiefly because the stress to which a spring may be subjected is not easily limited, when we consider road shock, wrap-up, and excessive vertical deflections, all added together when a bad bump is encountered and brakes are applied at the same time, a very low limit for stress is used in spring design. Stress limits usually used, under normal load, are: front springs, 50,000 to 60,000; rear springs, 65,000 to 75,000.

A simple formula for checking this stress against your spring is:

$$\frac{\text{Deflection} \times \text{Thickness of Individual Leaf} \times E (28,000,000)}{(1/2 \text{ Length})^2} = \text{Stress}$$

Since the length of the spring is fixed by the manufacturer, we can only vary either the deflection or leaf thickness.

(TURN TO PAGE 69, PLEASE)

REDESIGN THE SPRINGS IF BREAKAGE IS CHRONIC

(CONTINUED FROM PAGE 66)

thickness which affect the stress in direct proportion. If our stress figures for the spring involved is below the limits, we can safely raise the spring in proportion to the difference and bring it up to the limit. By the same process, if we want to increase our leaf thickness for greater eye strength, for example, the same thing holds true.

NOW we know we can safely raise the spring a certain amount and must add a certain amount of steel to obtain the desired capacity. We may want to do a complete job and strengthen the eye of the spring by using a heavier main leaf. Our stress check says we can do that. But how will that heavier steel affect our capacity. Well, the old fact that for a given width and length, the capacity of steel bars varies as the cube of their thickness, holds true on springs and can be used to make the proper adjustments in capacity required.

We still have some steel to add. Now, where is the best place? Of course, the length of steel required to give the necessary weight, is a factor, but generally, the nearer the extra leaf or leaves can be installed to the main leaf, the better. Also, the longer and fewer leaves the better, so as to avoid U-Bolt complications, as well as additional torque moment length due to extra spring thickness. The best rule to follow is to install the leaves with the view to maintaining uniform spacing between the leaves. Fig. 2 illustrates what to look for when a spring is loaded. C and D are bad, E is correct with uniform spacing. In all events, avoid installing in such a way, as to get two leaves of equal length together and setting up a localized stress point.

By the above procedure, most every service problem can be licked. Probably a little preventive maintenance, though, could eliminate most spring problems today. Springs, like tires, are expendables. Their life, like tires, can be greatly extended by a little care. The only difference between the tires and springs, is that you see the results of tire abuse as it develops, and you don't see the results, usually, of spring abuse until the result occurs.

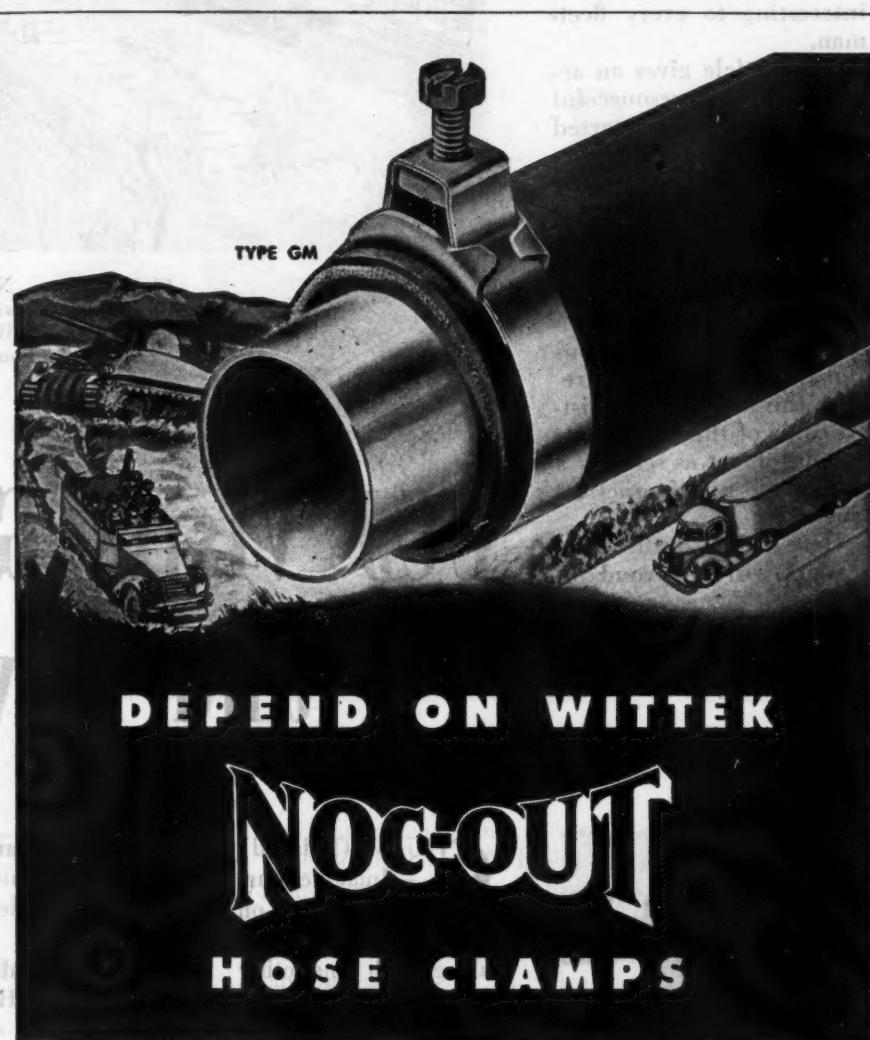
Nine Million Miles Covered by 476th Quartermaster Group

Trucks of the 476th Quartermaster Group travelled a grand total of 9,000,000 miles while engaged in the all-important business of transporting First Army troops, evacuating prisoners of war, and the hauling of all classes of supplies and thousands of tons of ammunition during the drive from the beaches of Normandy to the heart of Germany. Drivers, their vehicles and cargoes frequently were subjected to hostile small arms fire, air strafing and bombing, rocket attacks, and artillery fire.

Trucks of the 476th Group transported

460,000 tons of ammunition and supplies—equivalent to 46 Victory ship loads. Hauls ranged from short ones of 50 miles up to 700 miles. Drivers of the trucks and their helpers all but lived in the cabs of their trucks—day and night. Mechanics and maintenance men accompanied the trucks to perform "on the spot" repairs and so kept the trucks rolling.

Individual truck drivers often stopped long enough to capture a German or two, and one company bagged six German paratroopers last December during the "battle of the bulge," along with all guns, ammunition, and supplies.



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PRACTICAL TRUCK MEN IN THE PACIFIC

This is the first of several articles by COMMERCIAL CAR JOURNAL'S War Correspondent, Gene Hardy. Mr. Hardy traveled in the Pacific theater studying the applications of motor transport. His observations of the role of trucks in the war against Japan and in the men who keep them rolling will be interesting to every fleetman.

This article gives an account of the resourceful motor pool which started on Guam with four officers and a handful of men and developed into the largest single truck unit in the Navy. It gives details of truck maintenance and operation, startlingly contrasting D-Day conditions and those of today. It relates the needs and registers some of the complaints on equipment as seen by a staff made up of practical truckmen.

Here's an outfit that readers will be proud of.



Fig. 2, above. New shop buildings under construction. The long buildings will contain 54 stalls and will house the entire maintenance facilities. Fig. 3, right. These Quonset huts will soon house all of the men of this motor pool

CCJ Visits GUAM and Navy's Largest



Fig. 1. Line-up of part of the 6x4 ammunition trucks. Mr. Hardy questions Lt. Harold H. Yackey, Officer in Charge of motor pool

in during the the invasion of Guam. The efforts of Lt. Yackey's outfit have resulted in the present Island Motor Pool of Guam, with about 450 trucks and modern maintenance facilities.

This motor pool is the Navy's first attempt at setting

GUAM (Delayed) —Imagine yourself dumped on an island on D-Day, along with one other officer and two chief petty officers, with an order to set up a truck cargo transportation system, minus any rolling stock or maintenance equipment.

This was the position that Lt. (CEC) Harold H. Yackey, USNR, Vista, Cal., Fig. 1, found himself

up a central cargo handling unit and while fraught with many early mistakes, the plan has worked out into a model of efficiency and has kept cargo moving on the island.

The germ of the idea was born at Pearl Harbor in April, 1944. However, there was not sufficient time to assemble men or equipment before the Navy was confronted with the recapture of Guam. When the Marines landed on the island, preparations consisted of:

1. Ordering of 75 men for driving duty and 15 men for mechanics duty from Seabee battalions then selected to take part in the invasion of Guam. These men were to report for duty on arrival at Guam.
2. Ordering of 250 2½-ton GMC 6 x 6 cargo trucks to arrive with the early echelons.
3. Ordering of a small amount of repair and servicing equipment including a portable machine shop, two air compressors and a few hand tools.

Unit Built from Scratch

IN JULY shortly after the landings 75 men from Seabee battalions were attached and 12 1½-ton used Ford



Truck Unit

Starting from scratch with a few trucks and men and makeshift facilities, the unit now has 450 trucks, over 1000 men and mechanical staff that handles 120 repair orders daily

by GENE HARDY

Commercial Car Journal War Correspondent

commercial trucks were temporarily loaned the Motor Pool from equipment received for the battalions, and cargo moving was started.

Plans made at Pearl Harbor assumed that men assigned would be based and subsisted at their own units, but

Fig. 4. Officer personnel of the motor pool. Left to right, bottom row: Lt. Walter D. Kibler, Operations Officer, Indianapolis, formerly associated with the W. D. Kibler Trucking Co.; Lt. (j.g.) John C. Hubbard, First Lieutenant, Chicago, former automotive superintendent for the Central Division of Kraft Cheese Co.; Lt. (s.g.) William J. Casazza, Dispatcher, Albany, N. Y., McArdle Trucking Co.; Lt. Charles Miller, Shops Officer, Chicago, served for many years with the Ford Motor Co.; Lt. (j.g.) Albert L. Rudd, Dispatcher, Minneapolis, formerly connected with Midnight Express, Inc. Back row: Lt. Cmdr. Banice Feinberg, Medical Officer, Providence, R. I.; CW/O Thomas M. Cherry, Educational Officer, Muncie, Ind., Borg Warner Corp.; Lt. (CEC) Harold H. Yackey, Officer in Charge, Vista, Cal.; Chief Machinist George E. Lickey, Shop Officer, Chicago, Chrysler Corp.; Lt. James F. Whalen, Executive Officer, Havana, Ill., previously with Whalen Motor Sales

this was changed and a camp was set up for the men assigned to the pool. Living conditions were tough for many months. Food was first cooked over open fires and later, when about 500 men arrived, on a salvaged wood range that had been part of the original Marine garrison equipment.

When your correspondent visited the motor pool, about 1600 men from about 40 different units were assigned. After the pool moved into its new quarters, Fig. 5, the complement totaled about 1500 men, 1000 permanent members of the pool and 500 from other outfits, as well as 34 officers and 55 chief petty officers.

During my visit the pool was moving into its new location, one of the sites of the original landings when the Marines moved into the island. This location is one of the best on the island, and living quarters as well as shop and storage space are a tremendous improvement over the original site.

The principal task of the pool is the hauling of all types of cargo from the ships to dumps and warehouses and the supplementing of all general hauling on the

(TURN TO NEXT PAGE, PLEASE)



Fig. 5. Living quarters of enlisted men in Seabee motor pool on Guam. These men living under the most difficult conditions have turned in remarkable records in keeping trucks rolling



Fig. 6. Original shop layout of motor pool. Made from salvaged Jap wood and sheet metal. These make-shift buildings housed the entire maintenance units, exclusive of grease racks

CCJ Visits Guam and Navy's Largest Truck Unit

(Continued from page 91)

island. The Motor Pool is the largest single truck unit in the Navy.

The staff personnel of the pool is adequately stocked with men long experienced in trucking and automotive work in the United States. (See Fig. 4.) In regard to enlisted personnel, the Navy has tried to pick men with driving experience, but few of these were familiar with the heavy equipment now in use. Most of the men assigned to the unit had previous experience with every variety of outfit. The educational program, under Chief Warrant Officer Thomas M. Cherry, educational officer, has proved very satisfactory in training the men for their new duties. Lectures, bulletins, and actual on-the-job training is used. This program has been carried on in connection with regular duties, rather than during off periods, which are conspicuous by their absence. There is still a shortage of trained drivers and mechanics.

The pool was required to build its original camp and has done much of the work on the new location. The unit is self-sustaining in regard to food, laundry, recreation, medical services and all other necessities of military life, as well as all echelons of equipment repair. The morale of the men has always been high despite the difficult conditions, and the officers in charge had nothing but the highest praise for the performance records turned in by the men under their command.

As more and more units came ashore and more cargo was hauled, more men were assigned. Men from Army, Marine, General Service, Navy and Seabees were assigned. Chamorro natives were employed for work in the camps. However, in early December civilian employment was stopped, and the outfit became a strictly military unit.

Operation of the Pool

THE Motor Pool operates on a 24-hr. basis, with two shifts of drivers. The day shift runs from 7 a. m. to 6 p. m. and the night shift from 6 p. m. to 7 a. m. There is an hour break in both shifts. Drivers work seven days a week, while the shop personnel are on a six-day week and work slightly shorter hours. A system was recently instituted whereby each driver will have one day off each week, and it is hoped that eventually the entire operation will be on a six-day week. On a representative day shift with 417 trucks, 1049 trips were made, or an average of 2.5 trips per truck. The longest haul is about 60 miles round trip. Average hauls are about three miles.

In the military sense the pool is broken down into squads, sections, platoons and companies. A squad consists of six trucks, 12 regular drivers and one relief driver. A section is composed of three squads, 18 trucks, 36 regular drivers, three relief drivers and one section leader. A platoon is composed of three sections (nine squads), 54 trucks, 108 regular drivers, nine relief drivers, three sections leaders and one platoon leader. A company, the largest unit, consists of two platoons (six sections), 108 trucks, 216 regular drivers, six section leaders, one relief section leader, two platoon leaders and one company leader.

Trucks and Equipment Arrive

ON this basis 300 trucks on the road at all times require 323 trucks in operating condition and three companies of men. With 350 trucks on the road 377 are necessary in operating condition and three companies plus one platoon. With peak operation of about 400 trucks, 432 are required to be in running order and four companies are needed to operate this number.

The 250 6 x 6's started arriving in early August and as they were received, additional personnel was also allotted to the pool. The condition of the roads as well as the necessity for driving where roads did not exist made the use of 6 x 6's almost mandatory in the early stages when the principal loads were rations, tents and ammunition. As roads were improved and heavier equipment was moved into Guam the need for heavy low-bedded equipment became apparent. Surfaced roads began to appear in early 1945, and at present there are about 40 to 45 miles of surfaced four-lane highways on the island, and about 200 miles of improved roads.

During the assault stages every truck was operated 24 hours a day and hauled ammunition and supplies directly from the beaches to the firing line. Generally allowable loads were about 7½ tons and in exceptional cases much greater weights.

In October, 12 semi-trailers and six tractor units arrived. In December six more tractors were received. In February the Army transferred six low bed trailers with 4-ton 6 x 6 trucks for tractor use to the pool. During my visit there about 360 2½-ton cargo trucks, eight or nine semi-trailer units and six low-bed trailers were in continuous use.

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Bendix

Hydraulic Power Steering

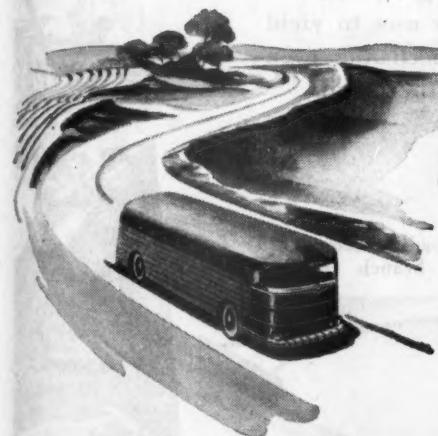


reduces driver fatigue—

gives

greater

control



and increased safety

Bendix Power Steering
shown in combination
with Ross steering gear.



In the operation of a bus or truck, steering requires constant driver effort and attention—in fact no other operation contributes so greatly to driver fatigue.

And in the matter of vehicle control, sure, easy steering is likewise essential for safe and efficient operation.

Bendix Hydraulic Power Steering is specifically designed to meet these steering problems. Thoroughly tested on the battlefields of the world, Bendix Hydraulic Steering has demonstrated its ability to provide dependable power for steering.

Bendix Hydraulic Power Steering means more than finger-tip control. Because the hydraulic system does not start to function until extra steering effort is required, vehicles are driven with a complete and natural road sense with no tendency to oversteer or wander.

Important, too, is the immediate counteracting hydraulic response that prevents loss of control when the vehicle strikes a road obstruction, soft shoulder, or has a tire blowout.

The Bendix Hydraulic Power Steering Unit is a compact, completely housed integral assembly and is installed with the same type of mounting used with conventional gears. If you are interested in more efficient and safer operation of trucks or busses why not investigate the advantages of Bendix Hydraulic Power Steering. Full details gladly sent on request.

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Oil Field Service Fleet Strikes Parts Gusher

Oil is where you find it, and nature challenges men and machines to come and get it. The business of the Halliburton organization, oil well cementing, exacts a heavy toll on even the strongest of commercial trucks. The extraordinary hardships of oil field operation, probably without parallel in most fields of truck operation, have been offset to a great degree by our maintenance and salvage program.

The Halliburton fleet of today comprises 400 trucks. Since oil well cementing service is on call, trucks and their equipment must be ready to go with only a few minutes notice. Delays and breakdowns that might result in the loss of thousands of dollars or damage to an oil well have been averted by a careful periodical check up of every truck in the fleet.

Drivers Make Emergency Repairs

"We'll get there somehow—safely," is the slogan of our field men. Their performance record testifies to

"WE'LL GET THERE SOMEHOW—SAFELY"

Meeting extraordinary conditions is the Halliburton Oil Well Cementing Co. A Halliburton truck must get through to location regardless of road conditions. Parts shortage was an obstacle that had to be hurdled. It was—in a manner characteristic of the fleet's motto, "We'll Get There Somehow—Safely."

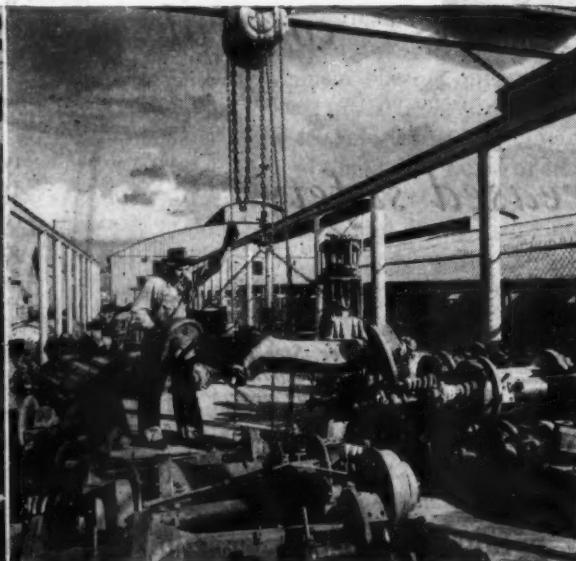
Today, the science of parts repair in Halliburton shops has been so expertly developed that, for example, two damaged engine blocks are used to make a good one.

Hundreds of other parts now are given surfaces or converted to new uses to yield thousands of additional miles of safe, economical service. Halliburton mechanics even designed special tools and jigs to insure good work. The article gives all the details.

Fig. 1. Engines and chassis parts are stacked in piles awaiting repairs at the central plant in Duncan, Okla.



Fig. 2. Repaired units on loading ramp ready for immediate shipment to the branch repair depots



their ability to live up to that slogan. Truck drivers stand high in responsibility in each of these crews. They are picked men—usually graduates of technical schools. When they enter the organization, they are put through a thorough training course in truck care, operation and safety. Every driver is thus able to make emergency repairs in the field.

PM Checks on Mileage Basis

ALL vehicles get periodic inspection as part of our preventive maintenance. We use forms that follow the checks recommended by the ODT.

In addition, trucks are checked in every detail before they leave for duty in the oil fields to insure trouble-free operation. Upon their return, possibly weeks later, every driver turns in a report on the condition of his truck, stating what adjustments or maintenance may be necessary. Then proper adjustments are made or, if need be,

Scrap pile tapped when truck parts get scarce, uncovering a continuous supply.

Special tools and jigs developed to repair parts once considered unsalvageable

the truck is turned in to the shop for reconditioning.

Rebuilding Begins with the Chassis

TRUCK maintenance, reconditioning and salvaging is a full time, all year activity. When a truck and its equipment is sent in from the field for a major over-

(TURN TO NEXT PAGE, PLEASE)

by B. O. JOHNS Maintenance Superintendent, Halliburton Oil Well Cementing Co., Duncan, Okla.



Fig. 3. Truck is stripped to frame. Parts are distributed to proper departments to specialists for repair

All Photographs by Robert Yarnell Ritchie

Oil Field Service Fleet Strikes Parts Gusher

(Continued from page 75)

haul, the entire unit is usually stripped down to the frame. Parts are then distributed to various departments for complete rebuilding—the engine to the engine repair shop, the pumps to the pump department, chassis and parts to special repair departments where specialists function. For instance, damaged cabs are sent to the body repair section and are carefully renewed, starting with the cab frame itself. After overhaul, all units flow together again to an assembly room where the complete unit is assembled and again made ready for duty.

Parts Salvage Program

FORMER scrap piles became a veritable gusher of salvageable parts when it became evident that parts were to be increasingly difficult to obtain. Mechanics cooperated and began to take special pride and satisfaction in salvaging worn or broken parts. Critical parts now are never discarded, unless hopelessly unsalvageable, but most frequently put back into service by means of the most complete and modern machining, welding and metal spraying equipment available. Every new salvage job (and new ideas and procedures are always turning up) is recognized as a major achievement. Metallurgists and engineers assist the mechanics in providing technical advice on ways and means of accomplishing the repair.

Every worn or damaged part offers possibilities for reuse in the Halliburton shops. Parts made of alloy steel, and that are on the critical list, are given special study for methods that will renew the life of the part. Accompanying illustrations show how parts that once were considered hopelessly damaged and fit only for the junk pile are quickly made serviceable through the skill of Halliburton mechanics.

Engine Block Repairs

AMONG important repairs in the parts conservation and reconditioning program is the salvage of damaged engine blocks. Often, two badly worn or damaged blocks are used to make one good one. The process has been so perfected that truncated cylinders from badly damaged blocks can be welded in place to effect a perfect salvage repair. Remachining restores the block to useful service.

Cylinder wall cracks are repaired by welding and annealing the block to eliminate distortion. This is an important salvage, for blocks are difficult to replace.

Worn pistons from larger engines are salvaged by

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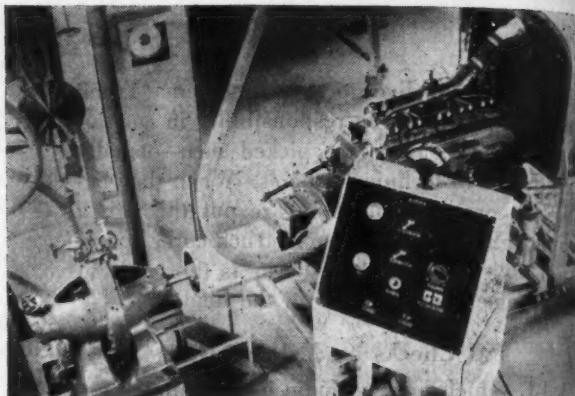


Fig. 4. Engines are checked for performance on the dynamometer. Economical operation is thus assured



Fig. 5. Repairmen iron out dents in the body, fill them with solder, weld joints and file surface smooth

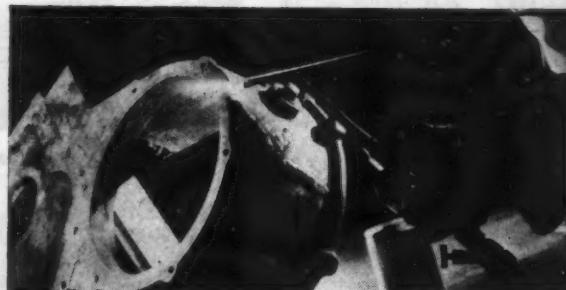


Fig. 6. Replacing a portion of a broken transfer case using acetylene torch and brazing it in place

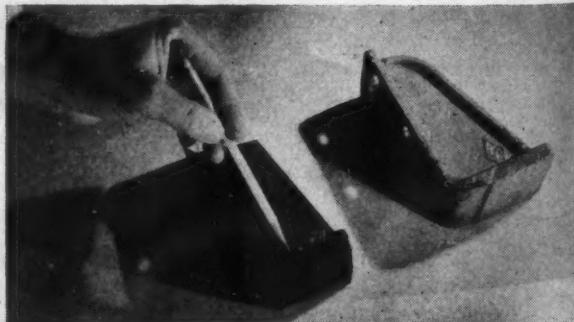


Fig. 7. Overload spring bumper bracket has been welded and re-machined to provide a new wearing surface

★ TRUCKS CARRY A WAR LOAD ★

EXIDES ARE HELPING
THE MOTOR FLEETS
GET THEIR CARGOES
TO DESTINATIONS
ON TIME . . .



Through every hour of every day, America's busy motor fleets are on the move . . . piling up tonnage records, mileage records, time records. And they are doing it despite the most severe handicaps motor transportation has ever known — handicaps which are overcome quickly and decisively through the determined efforts of the maintenance man.

On hundreds of thousands of these

motor trucks, most of which carry a war load, Exide Extra Duty Batteries, too, are establishing records. Their extra power and rugged build enable them to meet every demand made upon them. They stay on the job, day after day, serving with dependability, long-life and ease of maintenance.



THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32

Exide Batteries of Canada, Limited, Toronto

Oil Field Service Fleet Strikes Parts Gusher

(Continued from page 76)

turning them down on a lathe to fit smaller bore engines. Installed in the smaller size engine, they function practically as well as new pistons.

THE necessity of replacing worn transmission drives and gear housings is eliminated in shop by building up the worn trunnion surface with an electric weld and remachining the part to the original size. One of the most critical replacement items, the axle drive pinion, is salvaged in much the same way. The bearing surface is renewed with weld, turned to size, new keyways milled and damaged threads renewed to serve another truck for many trouble-free miles.

Worn axle trunnions are repaired quickly and effectively by building up a new wearing surface through welding and machining on a lathe to the original size. Axle shaft splines are reconditioned for further use in the same manner.

Metal spray is used to build up worn crankshafts and wearing surfaces, such as hubs, clutch shafts and lever assemblies, universal joint crosses, brake camshafts and other parts. Frequently a harder wearing surface can be added to the part than it had originally.

Driving spiders, worn to a point where they are no longer serviceable, are reconditioned by adding metal to the wearing ends and milling them to size. Wear in the water pump case is renewed by welding on metal and spot facings to size. Critical material is thus readily salvaged and trucks quickly put into service.

Cracked power-take-off housings have been repaired with the acetylene torch and braze. The same procedure is followed with transmission cases, engine crank cases and transfer case housings. On jobs where a portion of the case has been broken out or cannot be recovered, a corresponding part is cut from an old case, fitted carefully and brazed in place.

OTHER examples of reclamation and conservation are numbered in the hundreds. Every repair job presents its own peculiar problem and, in many cases, requires different handling. Satisfactory results have been obtained from repaired bumper brackets, built up by welding new surfaces; spring hangar brackets, built up by the welder and his torch; jack shafts, reconditioned as good as new; and steering knuckle trunnions, welded and turned to proper dimensions on the lathe.

Nothing can go wrong with a wheel that can't be repaired in these shops. The bearing races are renewed by adding metal and machining. Driving spider slots are

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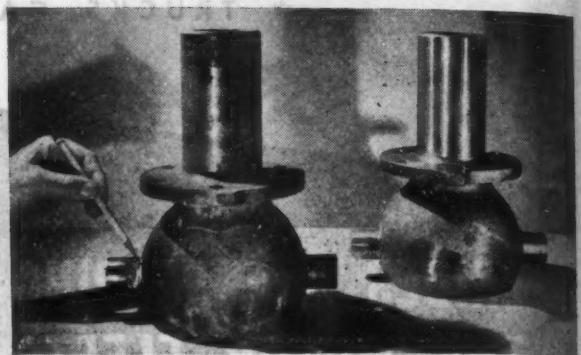


Fig. 8. Front axle trunnions are salvaged by building up the worn surface and refacing to exact dimensions

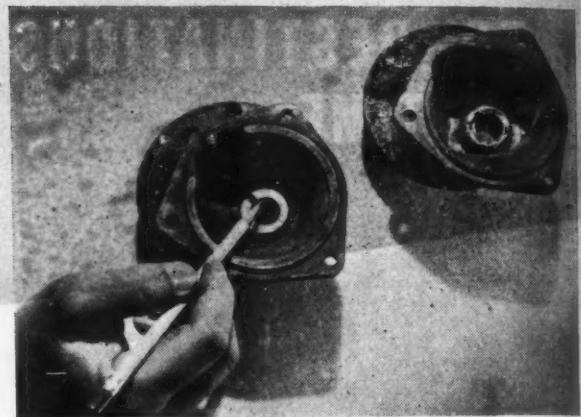


Fig. 9. Water pump case is renewed by welding and spot facing to size, saving critical parts and material



Fig. 10. Cylinder walls are repaired by welding the part in place and annealing block to eliminate distortion

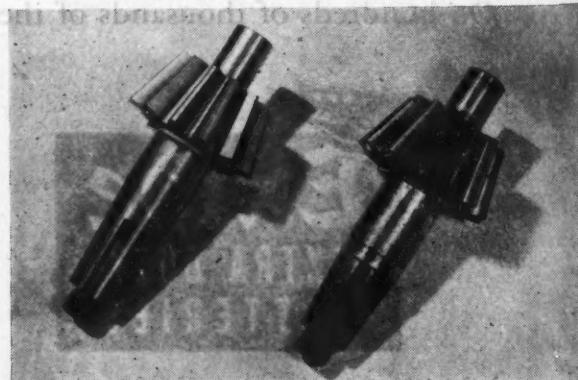


Fig. 11. Before (right) and after (left) the axle pinion drive was renewed with weld and machined to size



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"Sorry I'm late for supper again but my truck was tied up in traffic all day!"

Will we let slow-poke streets slow up America's postwar progress?

MOST Americans never stop to think how traffic congestion hurts everybody, till they get stuck in a car that has to inch its way through a busy district.

Lots of us put the blame on trucks and other commercial vehicles, yet serious thought tells us that no community could keep going, if business transportation were ruled out.

The plain truth is that we're trying to make room for cars and trucks in streets and alleys that were largely laid out for horse-drawn times. And unfortunately, it's only recently that many cities, towns and villages have begun to open their eyes to the fix in which this puts them.

Long-range planning needed

Parking at the curb alone takes up five to six feet of the right-of-way on each side of a busy street—slows

to a standstill the movement of through traffic for block after block, even if there were no cross-street vehicles or turn-offs to complicate matters.

Obviously, with building lines already fixed, it isn't possible to widen most streets or alleys in order to speed up vehicle movement. But many progressive municipalities are already at work on programs to ease the flow of traffic through their busier sections.

Everyone's help is urged

Conveniently located off-the-street parking areas, parking meters, one-way routes—all help some. But what's needed most is intelligent long-range planning for the day when two and even three times the motor cars and motor trucks we now have must be accommodated.

As America's pioneer and pace-

maker in the manufacture of highway vehicles, Studebaker is planning to provide the public after the war ends, with cars and trucks that will be more maneuverable than ever before.

But that will only help make driving easier—it won't strike at the roots of traffic congestion. The cure for that must come from the public itself, through fostering and putting into effect sweeping improvements in local vehicle-operating conditions. Your co-operation can be very important in speeding the day of real relief.

Studebaker

**PEACETIME BUILDER OF
FINE CARS AND TRUCKS**

Wartime builder of Cyclone engines for Boeing Flying Fortress—heavy-duty Studebaker military trucks—Weasel personnel and cargo carriers

Oil Field Service Fleet Strikes Parts Gusher

(Continued from page 78)

rebuilt, threads are recut, lug bolts are retapped and rim heads built up.

After parts have been rebuilt and assembled in the engine, the engine is tested on the dynamometer to make sure that full power is developed. Adjustments and corrections are then made to bring them up to standard. Other units are given as complete a test before being put into tough field service.

Shop Designed Jigs

SAFETY is given first consideration in repair and salvage operations. Brakes must be maintained so that they will stop these heavy duty trucks with capacity loads within 15 ft. at a speed of 20 m.p.h. To provide the required safety necessary our mechanics have developed several jigs and fixtures designed to insure accurate fit of the brake shoes. The special anvil, shown in Fig. 12, has been developed to check the brake shoes for concentricity. Irregular curvature is remedied on this anvil, insuring full lining contact. The anvil is simply a piece of heavy steel bent to the curvature of the type shoe on which it is to be used, as shown by the drawing accompanying the photograph. Ribs welded to the side hold it securely to its heavy base. The shoes are placed in the hollow and tested for proper concentricity. Sprung shoes as well as those that have been bent out of round can be rounded out in this device.

Another development of the shops is the brake shoe alignment jig, shown in Fig. 14. This heavy metal stand has a flat piece of steel with holes and pins placed so that they will meet the holes in the heel and toe of the shoe. The shoe is fastened to the plate and a special measuring device used to check the alignment. It can be trued then on the same device. Construction details are shown by the drawing accompanying the photograph.

After the lining has been installed on the shoe, it is ground to a special fit on another special grinding machine designed by the mechanics. Thus the entire brake shoe can be completely made over to give many extra safe miles due to the ingenuity of skilled mechanics and a few simple machines.

Aside from the fact that our salvage program supplied us with parts when needed, it has paid off in other ways. The new ways and means of prolonging equipment life resulted in the saving of thousands of dollars in parts costs. It has kept every vehicle in the fleet operating efficiently to meet crowded schedules and to bring our men and material to location and back again without fail—and safely.

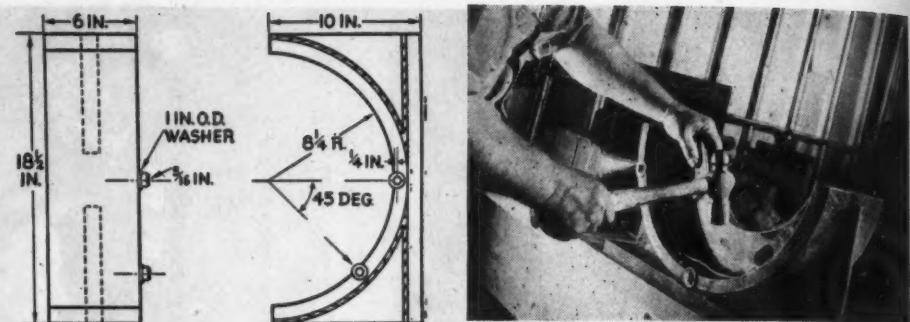


Fig. 12. Left. Drawing of the special anvil developed in the shops for checking and straightening brake shoes. Right. Mechanic using the jig

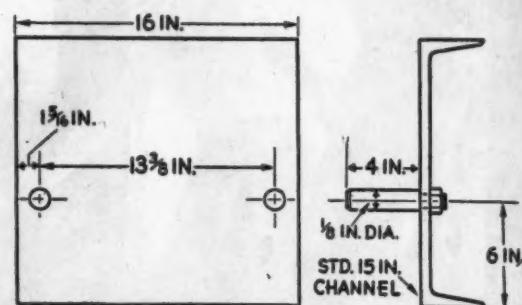


Fig. 13. Drawing of another jig designed for checking and correcting alignment of the brake shoes. Use shown below



Fig. 14. This mechanic is checking alignment of brake shoes on the special jig. The shoes also will be realigned on this jig

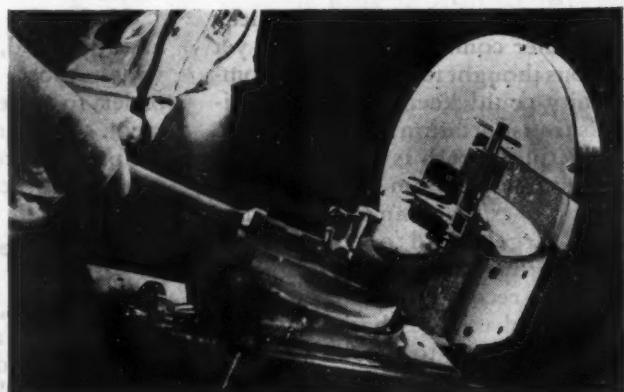
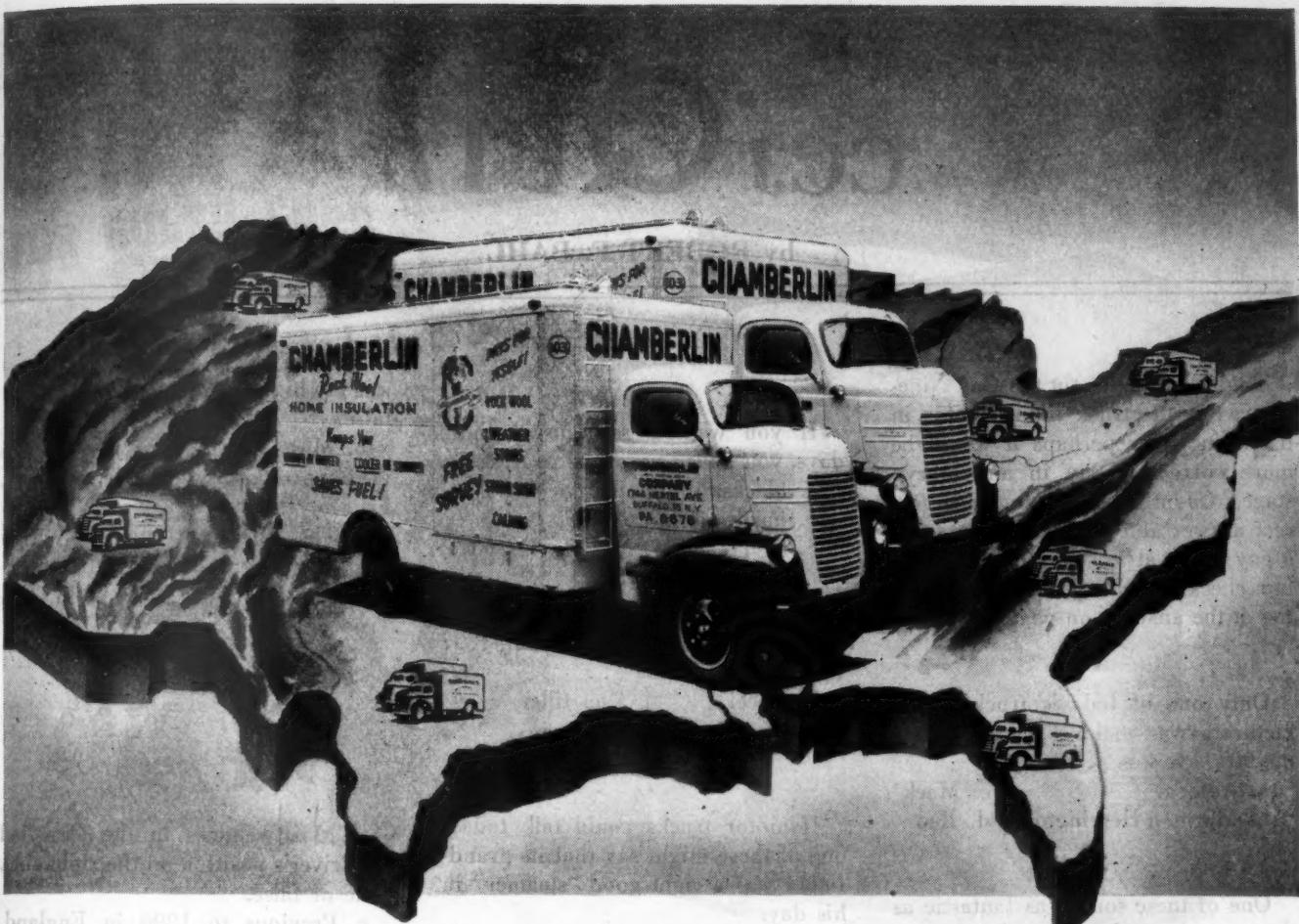
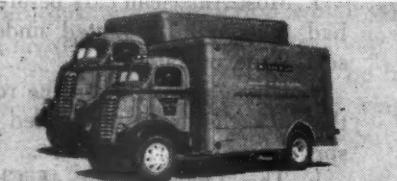


Fig. 15. Mechanic grinding the brake lining for a perfect fit on a special grinding machine. Brakes are maintained so that they will stop heavy-duty trucks with capacity loads in a distance of 15 ft. at a speed of 20 m.p.h.



"Identical Twins" many times over



For new additions to their fleet, Wilson & Co., meat packers, specified Ls on the performance record of Ls bodies which they put in service before the war.



A number of National Dairy Subsidiaries are using insulated Ls truck bodies.

It will pay you to get acquainted with "Ls Jim"—your neighbor who builds truck bodies as you want them. Combines Ls mass production . . . with local personal service. Write for his name.



THE ALL-STEEL Ls TRUCK BODIES OF CHAMBERLIN COMPANY'S NATIONAL FLEET ARE IDENTICAL, THOUGH BUILT IN DIFFERENT PARTS OF THE COUNTRY

The Chamberlin Company of America, home insulators, recently standardized on Lindsay Structure truck bodies for all branches of their national fleet. Identical bodies in 12-, 14-, and 16-foot lengths are already being supplied by a dozen or more of the 105 Ls builders located at key points throughout the country.

Truck bodies of Ls, modern method of all-steel construction, can be built to any desired size or shape. The same distinctive style can be maintained for all branches of a national fleet—though built locally by the nearest Ls body builder. Shipping difficulties are eliminated and delivery hastened; maintenance is simplified and costs are reduced. Interchangeable parts for Ls are readily available, and the nearest Ls builder can do a factory repair job overnight.

Check the possibilities of Ls bodies when planning postwar renewal and expansion of your fleet—they'll be available in both steel and aluminum. Write to Lindsay and Lindsay, Adams-Franklin Bldg., Chicago 6, Ill.; 60 E. 42nd St., New York 17, N.Y.; or Lindsay Structure (Canada) Ltd., Dominion Square Bldg., Montreal.

LINDSAY STRUCTURE



U. S. Patents 2017629, 2263510, 2263511
U. S. and Foreign Patents and Patents Pending

DISTRIBUTORS AND DEALERS THROUGHOUT THE COUNTRY

CCJ QUIZ

by ROBERT F. BAHL

This is a quiz about the Gay Nineties, when the truck industry was in its infancy—or perhaps it would be more correct to say in an embryo stage. Count 10 points for each correct answer and see if you can score a gay 90 or at least a merry 80. No fair checking with Grandpa or peeking at the answers on page 87.

1.

Only one of today's truck manufacturers was making trucks during the 90's. It was . . .

- a. Autocar
- b. Marmon-Herrington
- c. Mack
- d. Reo

2.

One of these sounds as fantastic as the next, but take your choice anyway. In 1896, an automobile was . . .

- a. the feature attraction of Barnum and Bailey's Circus
- b. sold to the Shah of Persia for \$5,000,000
- c. placed (the automobile itself) in prison as a public nuisance



3.

One of the popular songs of that era was titled "Wait for the Wagon." If you remember the words, you'll know it was good publicity for . . .

- a. Dodge
- b. International Harvester
- c. Studebaker
- d. Chevrolet

4.

The automotive industry even had its own trade journal as far back as 1894, a publication named . . .

- a. The Modern Review of Touring
- b. The Horseless Age
- c. American Autoist and Cyclist
- d. The Commercial Car Journal

5.

If you wanted gasoline in those days, you pulled up at the nearest . . .

- a. blacksmith shop
- b. hardware store
- c. livery stable

6.

As you proudly steered your 1897 model you held the . . .

- a. wheel
- b. stick
- c. tiller
- d. reins

7.

If motor trucks could talk today, one of these might say that its grandfather was a right good "steamer" in his day.

- a. Diamond T
- b. Ford
- c. Sterling
- d. White

8.

There were Army contracts even before the turn of the century, but when the War Department ordered automobiles, it made sure they . . .

- a. were guaranteed to run 5 miles per hour
- b. were guaranteed to run (period)
- c. were able to carry four 200-lb. generals
- d. were equipped so that a mule could be hitched to them

9.

Tell us whether each statement is TRUE or FALSE, counting one credit for each statement.

- a. The biggest drawback to the development of the gasoline engine

was the high cost of the fuel. True or false.

b. Most automobiles in the 90's were powered by electric batteries. True or false.

c. The Winton Delivery Wagon was the first gasoline truck to be produced on a commercial scale in U. S. True or false.



d. Most vehicles in the 90's had the driver's position on the right side. True or false.

e. Previous to 1896 in England, any motor vehicle on the road had to be preceded by a man on foot carrying a red flag by day or a lantern by night. True or false.

f. Most American cars before 1900 had the engine mounted under the seat. True or false.

g. There were cars on the road in the 90's that were propelled by a spring motor. True or false.

h. The *Times-Herald* of Chicago in 1895 offered a prize of \$500 for the best generic name for the horseless contraptions being developed. The winning name was "automobile." True or false.

i. Early vehicles depended on dry cells for electric current. True or false.

j. America was far ahead of Europe in pioneering the motor vehicle. True or false.

10.

Half a century ago, any one of these cities could boast of being the motor capital of the nation . . . for in each of them one of America's great "gasoline aristocracy" was at work. The problem is to match the town with the inventor.

a. Springfield, Mass.	1. Charles Duryea
b. Cleveland, Ohio	2. Henry Ford
c. Dearborn, Mich.	3. Elwood Haynes
d. Kokomo, Ind.	4. Ransom E. Olds
e. Lansing, Mich.	5. Alexander Winton

**"IT'S FRUEHAUFS . . .
FOR BULKY CORK CASKETS OR TONS OF BOTTLE CROWNS!"**

says Mitchell and Smith



22,000 lbs. pulled by a 2½-ton International Truck

MITCHELL & SMITH manufacture all kinds of cork products. Their problem is fast delivery. Most orders are "wanted yesterday".

One load will be bulky cork gaskets for automotive, aircraft and tank production which go to busy Detroit war factories—yet, it may scarcely weigh 5 tons. Then, the next Trailer load will be heavy bottle caps with a tremendously concentrated weight. The drivers say their loads reach 22,000 lbs.—but are pulled with the same 2½-ton truck.

From light to heavy loads, Fruehauf Trailers serve the company well—cutting the number of trips to customers and giving them better service.

There's no lost loading time in this operation. One Trailer is loaded at the manufacturer's dock while the other is en route. Upon the driver's return, he simply "spots" the empty Trailer for loading—couples his truck to the loaded Trailer and leaves without delay.

If this experience suggests savings in your business, why not have a Fruehauf transportation engineer go over your hauling plans with you?

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER CO. • DETROIT 32
Service in Principal Cities



OPPORTUNITY FOR EX-SERVICEMEN

A number of openings are available in Fruehauf Factory Branch Service Stations for men with mechanical ability. These positions offer excellent training and opportunity to graduate to the company's sales force. Contact your nearest Factory Branch for further information.



*"Engineered
Transportation"*
REG. U. S. PAT. OFF.

FRUEHAUF TRAILERS



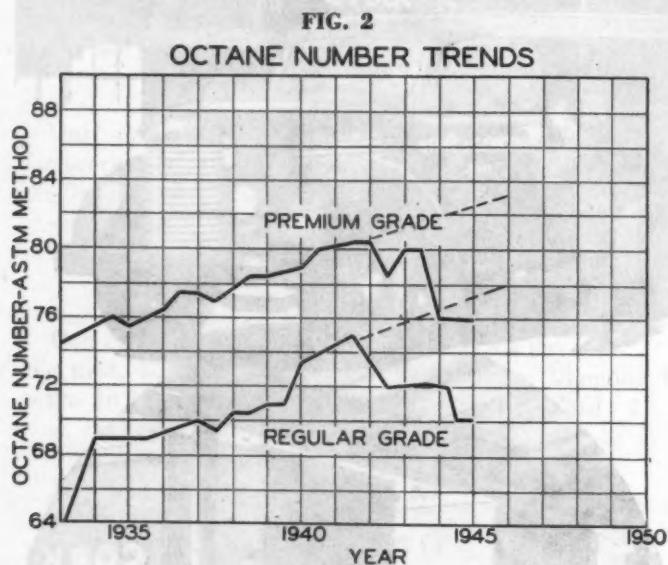
THE ANTIKNOCK QUALITY OF POSTWAR GASOLINES

(CONTINUED FROM PAGE 40)

speeds—below 1200 r.p.m. However, if a new type transmission were used which would prevent "loading" the engine below 1500 r.p.m.—in other words, if the engine were loaded in much the same manner as a propeller loads an aviation engine—the need for a fuel having good low-speed antiknock qualities would be less important. Factors such as this must be considered by the refiner when making new gasolines.

3. Competition an Unpredictable Variable

THE effect of competitive demands on the antiknock quality of postwar gasolines is not relative to a technical discussion of this type. It is mentioned here only as an unpredictable variable that could influence our esti-



mates of postwar fuel quality. However, if competition has any effect on the antiknock rating of postwar fuel, the tendency would probably be an upgrading rather than a lowering of quality.

Pre-war Quality Trend Was Upward

BEFORE proceeding with actual postwar predictions, it is interesting to investigate prewar trends in the antiknock quality of gasolines as shown in Fig. 2. It will be noted that the petroleum industry has continually increased the quality of motor gasolines, but this steady improvement was stopped by our participation in the present war. If we disregard the effect of the war on gasoline quality and extrapolate past trends, we find that by 1946 premium grade gasoline would have reached an octane number of about 84 and regular grade an octane number of about 78.

Such extrapolation, however, makes no allowance for the effect of new wartime refining equipment on the antiknock quality of postwar gasolines. As previously indicated, it is not probable that the refining industry will improve postwar gasoline quality by producing aviation gasoline up to the limit of their capacity and dumping the excess into motor gasoline. Rather, much of the new wartime equipment will be used after it has been

properly converted to the manufacture of gasoline suitable for truck and passenger car engines.

Prediction of Postwar Quality

IN order to give as accurate an idea of postwar gasolines as possible, a survey to obtain the opinion of technologists in the petroleum industry was made. This survey was started in the latter days of 1943 and has been kept up to date by subsequent discussions with members of the oil industry. The considered opinion of the petroleum industry, taking into account the effect of equipment conversion, is given by the prediction of postwar gasoline quality in Table 1. (See page 39.)

The octane numbers of the various grades of gasoline are given as reasonable estimates considering the relative production of the grades as indicated. As stated before, any sizable variation in the relative proportion of the various grades sold may influence antiknock rating. It will be noted that aviation fuel in the postwar period is expected to account for 6 to 8 per cent of all gasoline produced against only 1 to 2 per cent before the war. This is about a four-fold increase and reflects the effects of wartime expansion on future aviation gasoline demands.

Opinions vary, however, in regard to the amount of premium, regular and third grades that will be sold in the postwar period. A number of factors other than refining equipment that will be available must be considered in arriving at an estimate. Postwar prosperity, or the lack of it, for instance, will affect public demands for gasoline quality. Other factors that must be considered include the probable condition of engines in older cars and the antiknock requirements of new cars. Therefore, because of postwar uncertainties, the amount of premium grade gasoline sold may be anywhere between 10 and 20 per cent of total production.

It is not likely, however, that the octane number of premium gasoline would be similarly affected. New engines designed to use the new premium gasoline will have a stabilizing influence on antiknock quality. In this connection, it is interesting to note that the octane number of postwar premium gasoline—estimated at 85 to 88 (ASTM Motor method)—is comparable in antiknock quality to the 91 octane aviation gasoline sold prior to the war. It is, therefore, conceivable that many of the postwar airplanes, estimated by Civil Aeronautics Administration at 500,000 by 1950, will be designed to use premium motor fuel rather than a special aviation grade.

Octane Numbers versus Antiknock Quality

AS TO gasoline quality, the figures in Table 1 indicate that both premium and regular grade gasolines will be only slightly higher than indicated by the extrapolation of past trends. In our opinion, however, the increase in octane numbers, as such, is not altogether a true indication of antiknock quality. Using their new equipment and processes, the oil refiners will be able to control product type much better than before the war. This, combined with an increased knowledge of engine requirements, will allow the petroleum industry to produce gasoline blends which will perform considerably better than that indicated by laboratory octane number.

END

(Please resume your reading on P. 41)

QUIZ ANSWERS

CCJ Quiz on Page 82

1. a. Autocar was advertising a gasoline-powered delivery truck in 1899. The company was organized as the Pittsburgh Motor Vehicle Co. in 1897 and incorporated as the Autocar Co. in 1898.

2. a. Back in the 90's, Barnum and Bailey's Greatest Show on Earth was billing the automobile as "The Famous Duryea Motor-Wagon, or Motorcycle, the identical Horseless Carriage that won the great race in Chicago last November."

3. c. The song went like this, "We'll wait for the wagon—the Studebaker wagon—We'll wait for the wagon and we'll all take a ride."

4. b. No, we are not putting in a plug for our journal. The first trade magazine was the "Horseless Age."

5. b. There weren't filling stations at every intersection then, you bought your gasoline at the hardware store; at night, at the drugstore.

6. c. The steering apparatus was known as a tiller.

7. d. The White was one of the most popular steam automobiles.

8. d. Here's the essence of a War Department communiqué of 1899: "Three automobiles have been purchased by the War Department for the use of officers. Each is equipped so that a mule can be hitched to it, should it refuse to run." Italics ours.

9. a. False. Petroleum had its chief value in kerosene for lighting purposes. Gasoline was just a dangerous and obnoxious by-product.

b. True. The electric cars were simplest in construction and easiest to operate. However, they were abominably slow and were limited to the range of their batteries.

c. True. The Winton Co. had eight trucks under construction as early as October of 1898.

d. True. Early cars followed the precedent of the buggies and had the driver's position at the right. It was Ford's Model T that popularized the left drive, and it was not until World War I that left side steering became universal.

e. True.

f. True . . . which shows that our c.o.e.'s are not new after all. Practically all American cars in the 90's followed buggy styling, but European

makes already were placing the engine up front under a hood.

g. True. A number of cars were built employing a spring motor. The spring could drive the car only three miles before needing re-winding.

h. False. The prize went to "Motorcycle." Other names prevalent in those days were quadricycle, petrocarr, horseless buggy, horseless carriage, autocar and others. The French name, automobile, was not even in the running.

i. True. Five dry cells in series

were ordinarily used for the current.

j. False. Early developments in Europe, especially in France and Germany, outpaced anything in this country. Carl Benz had designed a gasoline driven tricycle in Germany as early as 1884.

10. Springfield—Duryea

Cleveland—Winton

Dearborn—Ford

Kokomo—Haynes

Lansing—Olds

END

(Please resume your reading on P. 84)

SUPERIOR
COACH CORPORATION
built 1500 of these Units
and Equipped them with
HANSEN HARDWARE

"WHICH Hardware can take the most punishment? Can stand up under rocky, rutty, jarring, jolting terrain? Hold doors tight, rattle-proof?" These questions Superior Coach Corp. answered with Hansen Commercial Body Hardware when they built 1500 units as pictured above, for the U. S. Signal Corps.

For this grueling service they used two of Hansen's heaviest, most ruggedly-built Locks, pictured at left. What ruggedness! Heavy, broad-shouldered bolts—strong rods—wide center mechanism. Small wonder they chose Hansen—strong, tough, durable.

Such is the strength and durability of Hansen, it often actually outlasts the job on which installed! Can any but the best Hardware have such a record? In blue-printing proposed new bodies, specifying or building them—make it Hansen!

No. 111 Heavy-Duty Lock. Center bolt, 2 1/2"; end bolts, 1 1/2", 1/2" rod.
No. 113 Slam-and-Take-up Lock. Slams and takes up. 3/8" rods 30" long.

Request Folder

A. L. HANSEN MFG. CO.
5047 RAVENSWOOD AVE.
CHICAGO 40, ILL.

No. 111
Heavy-Duty
Lock

No. 113
Slam-and-
Take-up Lock

HANSEN
HARDWARE for
Commercial Bodies

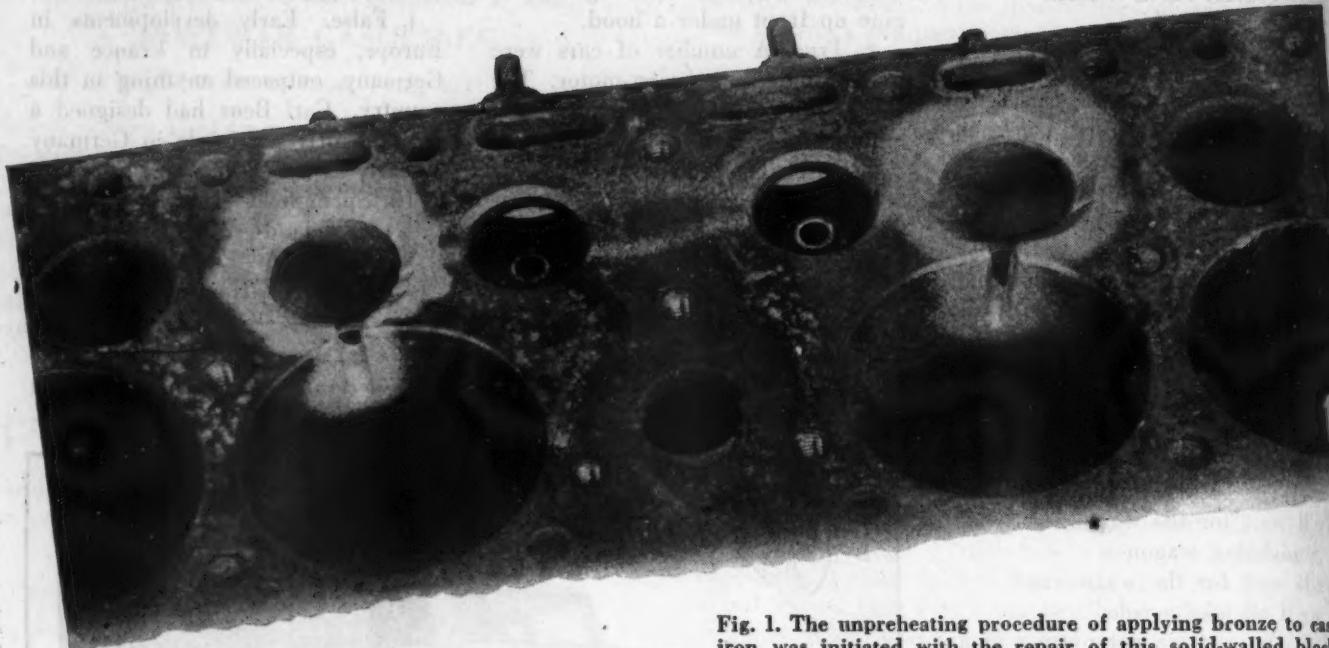


Fig. 1. The unpreheating procedure of applying bronze to cast iron was initiated with the repair of this solid-walled block

THE BEACHHEAD HAS BEEN WON

In this article Mr. Morton, points out that the surface heat, unpreheated bronze welding technique came into being as an emergency expedient. Many orthodox welders raised their eyebrows at this unorthodox procedure. But there was little room for complaint. The repairs usually remained repaired.

"Failures? Oh, to be sure," says Mr. Morton. "We have them with this method as well as with any other, but it cost less to find them."

Now that he has retired, Mr. Morton feels that the beachhead has been won for an easy, quick, reliable and inexpensive method of welding cast iron parts. He would like pro-

gressive "youngsters" to carry on the development of the process in which he has so much faith.

For example. "Up to now," says Mr. Morton, "we have been looking for the one superior rod which will retain all the advantages of the manganese-type bronze welding rods on all engine blocks, including the tough wear resistance on valve seats, and still stay attached to its cast iron base."

The author mentions other unsolved problems which, because of his retirement, he is not able to solve. The field is wide open and the reward worth-while.

UNPREHEATED WELDING — a Field

Used as an expedient, unpreheated bronze welding of cast iron parts proved a quick, economical repair method with good results; more experimenting required for perfection

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ENGINE blocks that crack from the valve guide opening up the side of the port, through the valve seat, across the top surface of the block and down into the bore of the cylinder, have been a nuisance on some types of blocks for many years.

Cracks resulting from mud clogged water passages, insufficient water, narrow water passages, or solid sections which do not permit adequate cooling, and abuse or neglect in operation (plus the possibility that the engine block retained strains from the day it was cast), are known merely as "heat cracks."

With the arrival of the old Pierce Arrow, twin valve,

to cast
block

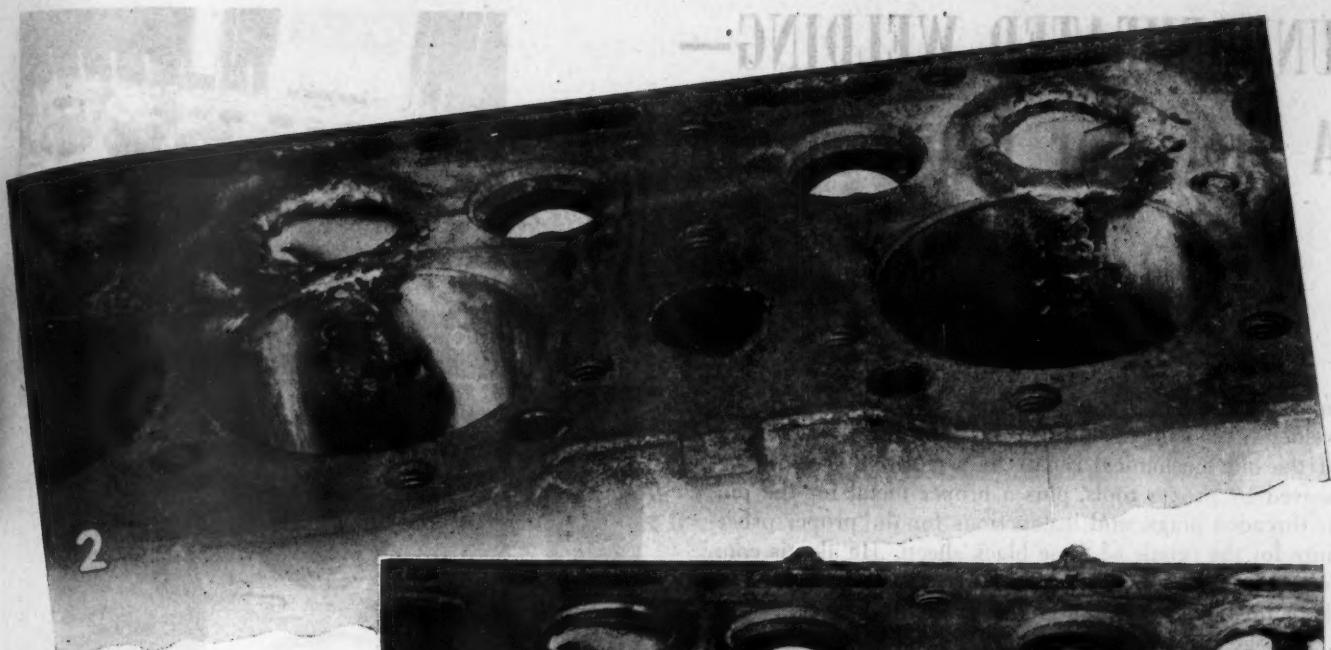


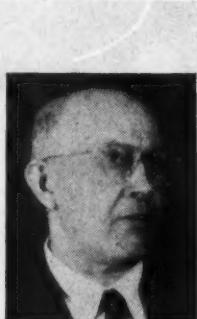
Fig. 2, above. These welds were made with a No. 4 tip. Today a No. 2 tip is used

Fig. 3, right. Bore and valve seats were peened then finished. Job gave 9 month's service



by ALEX. F. MORTON

Welder, Retired
Central Motor Repair Shops,
City of New York



Weld for Experimentation

twin ignition and alloy engine blocks came our earliest headaches. In later years, other alloys known as chrome nickel, ni chrome, and others identified only by an alloy number, brought more problems.

While all engine blocks are weldable, some become distorted as a result of the customary preheating method. Those that have the upper half of the crank case attached especially are susceptible to distortion. The cost of reconditioning this type is excessive.

Other types of engine blocks which are weldable by preheating do not stand up long enough in service to

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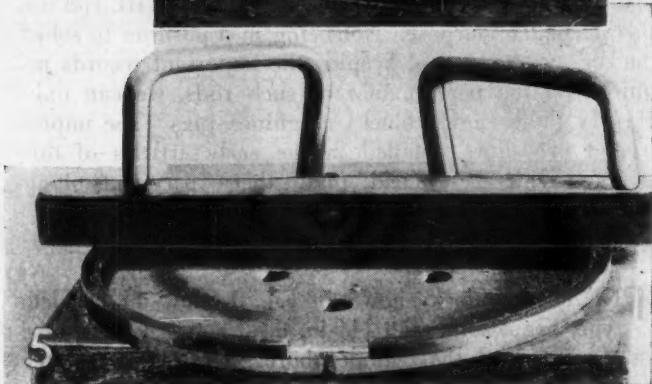
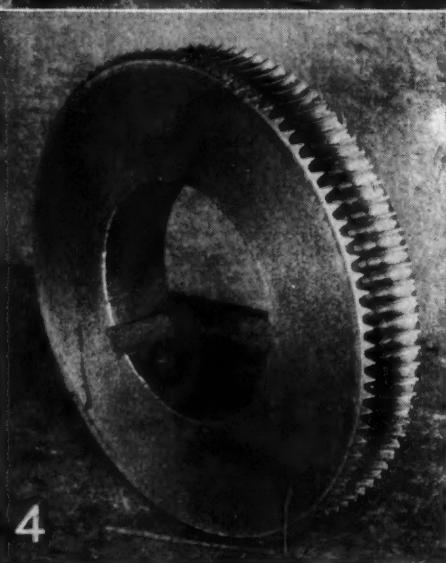


Fig. 4, above. A belt of bronze $\frac{1}{4}$ in. thick was built on a cast iron blank and teeth were cut out. There was no distortion or cracking, and it gave many months' service. Fig. 5. The welding of this piston ring, another "guinea pig," is an example of the flexibility and elasticity provided by bronze welds

UNPREHEATED WELDING— A Field for Experimentation

(Continued from page 89)

make this procedure worthwhile. And this particular welder takes some comfort from the recent resurrection of the old mechanical repair to perform this work, improved by proper tools, plus a proper metal for the pins or threaded plugs, and instructions for the proper procedure for the repair of these black sheep. He also is comforted in the belief that his headaches in the repair of these jobs by preheating were not his exclusively.

As long as the nuisance of these blocks cracking continues, methods of repairing them will always be sought. In accordance with this belief, the following unorthodox method of repair is offered as a way out of a difficulty.

To offer it as a "super-duper" method superseding all other methods is not the purpose of this article. It may, however, become the super method over a period of time, when others in a position to do so can keep accurate records on the performance of engine blocks repaired in this manner, and who, also, are in the position of carrying on further experiments. This perhaps will make it a standard worth-while procedure.

The "Needle in the Haystack"

UP TO now we have been looking for the "needle in the haystack." The needle sought is the one superior rod which will retain all the advantages of the manganese type bronze welding rods on all the different types of alloyed engine blocks, including the tough wear resistance on valve seats and still stay attached to its cast iron base. Manganese-type rods have demonstrated their ability to do this on all the jobs illustrated throughout this entire series, and without the necessity of pre- or post-heating the entire piece to carry out the repair operation.

Throughout the entire series no one manufacturer's rod has been used exclusively. While they are all listed as manganese rods, in among them must be the THE rod for this particular purpose. Not being in a position to select the rods wanted, or of keeping the important records required on the performance of such rods, we can only classify these engine blocks as guinea pigs. The unpreheated procedure detailed in the early articles of this series provide "beachhead" for further experiments along this line.

Guinea Pig No. 1

THE engine block shown in Fig. 1, now an obsolete type, has a solid wall $1\frac{1}{4}$ -in. deep between the intake valve ports and the cylinder bore. There is no water passage between this solid section. The block had been preheated and welded with a cast iron rod and reconditioned for the last time; the regrounding job having reached the limits of safe or practical oversize practice.

(TURN TO PAGE 92, PLEASE)

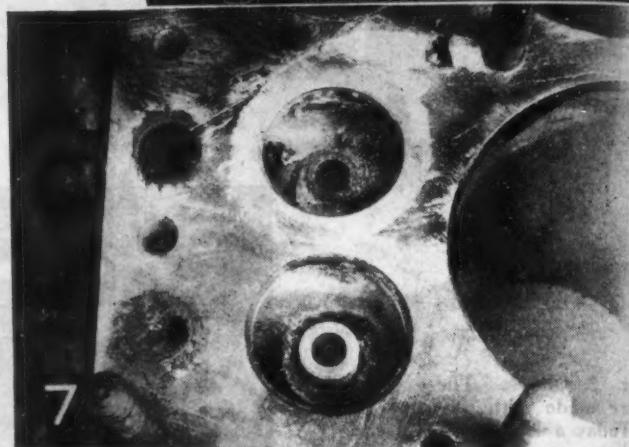
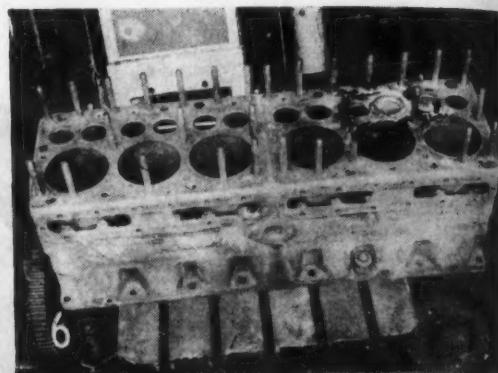


Fig. 6, top. This block was hoisted to the turntable, bronze welded and put on the test stand before the weld reached room temperature. Time was saved compared with cast iron welding. Fig. 7, above. Bronze valve seat repair also replaced inserts.

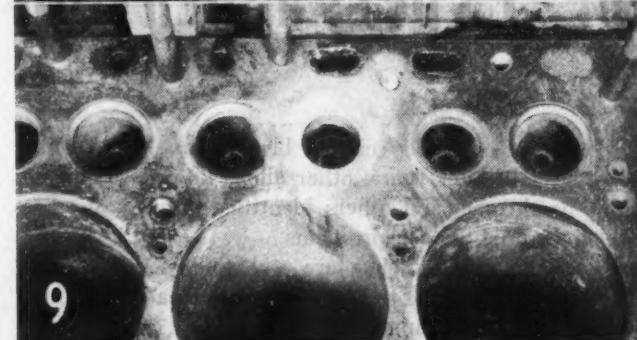
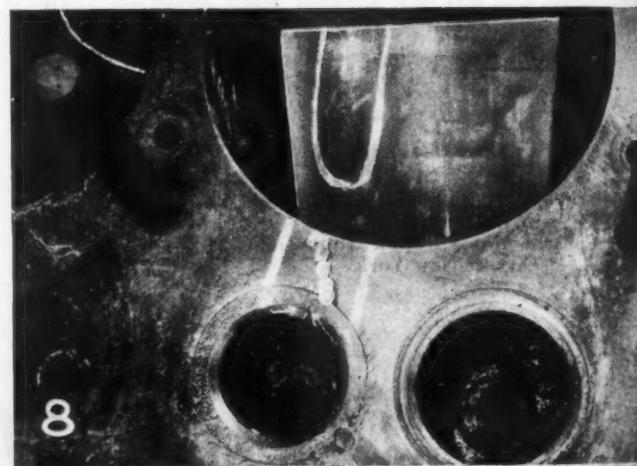


Fig. 8. Drilling for cold welds must be done carefully. Here the drill for the pinning operation came too close to the cylinder wall causing cracks (see mirror in cylinder). As a result the block leaked at the insert and in the bore. These cracks were successfully bronze welded, as shown above in Fig. 9

George lets Mack do it!...

"Let George do it!" is the answer to lots of tough hauling problems around Baltimore, Maryland. And the George Transfer and Rigging Company answers the challenge of the heaviest loads with rugged, reliable Macks. The George fleet includes sixteen hard-working Mack trucks. That selection was based on actual experience with Mack performance, dependability and stamina. Those are the qualities that are proving everywhere that you can't beat a Mack—anywhere!

A TYPICAL GEORGE OPERATION being handled by a Mack FJ Tractor. The load on this low-bed trailer scales a big 42 tons . . . a Main Reduction Gear manufactured by the Bartlett Hayward Division of The Koppers Company for the Victory ship S.S. Frederick. Big jobs like this are easy for Macks!



★ BUY THAT EXTRA WAR BOND TODAY ★



Mack Trucks, Inc., Empire State Building, New York City. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts.

Mack
TRUCKS
FOR EVERY PURPOSE
ONE TON TO FORTY-FIVE TONS



NEW Mack Trucks
are available for
essential civilian use.
Ask for details.

UNPREHEATED WELDING

(CONTINUED FROM PAGE 90)

It had cracked in the sections shown chipped out after only a few weeks in service. At that time engines were (some eight years ago) badly needed. The thought of scrapping the part or placing the oversize parts in stock for future use was discarded. We gambled on getting the worth of the repair and at least some service by bronze welding, rather than junking the block.

High preheating might have warped the bore making necessary another regrinding job. A very light preheating brought the entire casting to a point where it was just too hot for the hand. Today we look back on this repair with quite some amusement, for we doubt the value of that overall heating, in view of what transpired then and since.

THIS repair job is in reality solely responsible for the development of the unpreheating procedure of ap-

plying bronze to cast iron during the years which followed.

We bronze welded this job with a No. 4 tip as shown in Fig. 2, which today can be done with a No. 2. The large tip permitted the heat to spread far beyond the section to be bronze welded and reached a high red. The mysterious and unexplained action of the cast iron failed to crack it. With this high localized heat the balance of the casting was at a temperature described only as "too hot for the hand to touch." This is the discovery which led to omitting preheating of all bronze welding of cast iron.

After applying the bronze, the bore and valve seat were peened to increase density and eliminate pin or blow holes.

After machining the bore of the cylinders and cutting new seats on the intake valves, now of solid bronze (see Fig. 3) the engine was reassembled with the previously removed oversize parts. After another work-out on the shop test or "run in" stand, the engine went back in service where it stayed for nine months. This, surely, is no record to become chesty about, but at least we did get nine months' service from a block that should have gone to the junk heap.

At that time, the so-called cold welding, i.e., drilling, tapping, threading, peening, filing and the closing of any leaks on these mechanical repairs, with a liquid seal, was not so popular. Had it been, this repair would not have been made, nor those of a similar nature which follow. It is well to note, however, that the bronze in these two sections did not benefit by the cooling effect of the water in the circulating system on either of the two cylinder bore or valve walls, owing to the absence of a water passage at this point. No record or note was made on where the new cracks came when the block failed and was junked. The fact that the solid bronze valve seats were as good as the day they went in service, however, was worthy of remembering.

Guinea Pig No. 2

OUR first discovery—that a cast iron surface would not ordinarily crack while applying bronze to its surface when the extreme minimum amount of heat is used in the

(TURN TO PAGE 94, PLEASE)

KING-SEELEY ELECTRIC TELEAGES ARE RELIABLE AND DURABLE

There are certain engineering and construction features of automotive dashboard instruments that experience has shown are necessary to make them reliable and durable.

They must be able to withstand voltage variation. Telegages operate within a range of from 4 to 9 volts.

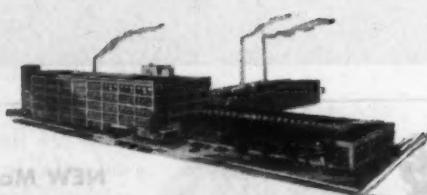
They must be able to withstand vibration. Telegages are tested on a machine that vibrates in two planes up to 6000 rpm.

Diaphragms are made of metal capable of withstanding 10 million stress reversals through the entire pressure range and metal floats retain their buoyancy indefinitely.

Telegages will operate at temperatures from -10° F. to 125° F. with an overall loss in accuracy of not more than 4%.

Spun glass insulation on electric circuits provides adequate protection against damage from temporary "shorts".

Tank arms and bearings are corrosion resistant to prevent sticking.



 **KING-SEELEY**
CORPORATION
ANN ARBOR MICHIGAN



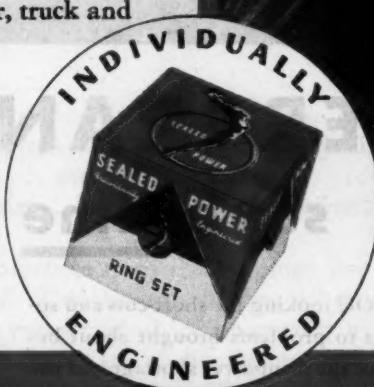
*For all makes and
conditions of motors...*

26 basic designs

For finest performance in your fleet, 26 basic designs of piston rings have been developed for Sealed Power Individually Engineered Piston Ring Sets. Each set is specifically engineered to do the best possible job in a particular make and condition of motor. Sealed Power has been refining these sets over five years — has been producing rings for car, truck and engine manufacturers 33 years. For best results, re-power with Sealed Power motor parts. Sealed Power Corporation, Muskegon, Michigan and Windsor, Ontario.

*Piston Rings, Pistons, Cylinder Sleeves,
Piston Pins, Valves, Water Pumps,
Bolts, Bushings, Tie Rods, Front End
Parts*

*Buy more war bonds—and keep them!
Pay \$3—get \$4!*



SEALED POWER PISTON RINGS

BEST IN NEW TRUCKS! BEST IN OLD TRUCKS!

UNPREHEATED WELDING

(CONTINUED FROM PAGE 92)

operation—was followed by the fact that bronze properly applied to a properly cleaned surface of cast iron, will stay put and absorb the contraction strains set up within itself when going from the molten condition to a solid state. Preheating and post-heating does not relieve this contraction strain, and is a useless procedure insofar as it concerned the repaired jobs in this series of articles.

In Fig. 4 we have a cast iron blank, formerly a gear, from which the broken cast iron teeth were turned off and cleaned by steel grit blasting. To this cleaned surface, a belt of bronze at least $\frac{1}{4}$ in. high was built by the surface heat unpreheated procedure. The small amount of heat which gradually penetrated into the core of cast iron was not enough to provide, by its expansion, for the amount of contraction taking place within the belt of bronze around its circumference. Inasmuch as the small

volume of bronze was not sufficient to overcome the resistance set up by this unyielding core of cast iron which was about 10 to 1 as compared to the volume of the bronze, and inasmuch as this ring of bronze teeth did not crack, either during the machine work required or during the many months it stood up in service, I would like to know what became of the contraction stress set up within the bronze, if the bronze itself did not absorb it.

WHEN these two important discoveries are understood, no hesitation will occur in the application of bronze to any unusual spot without the preheating or postheating procedure. Hesitation, formerly and in many places still exists today, prevents the full use of bronze by the non-recognition of these two advantages.

So whether we use bronze for an entire band of teeth or just one tooth or take advantage of its elasticity—another of its characteristics when applied to cast iron—the following demonstrations should provide an easy answer for its use on engine blocks.

Example of Elasticity

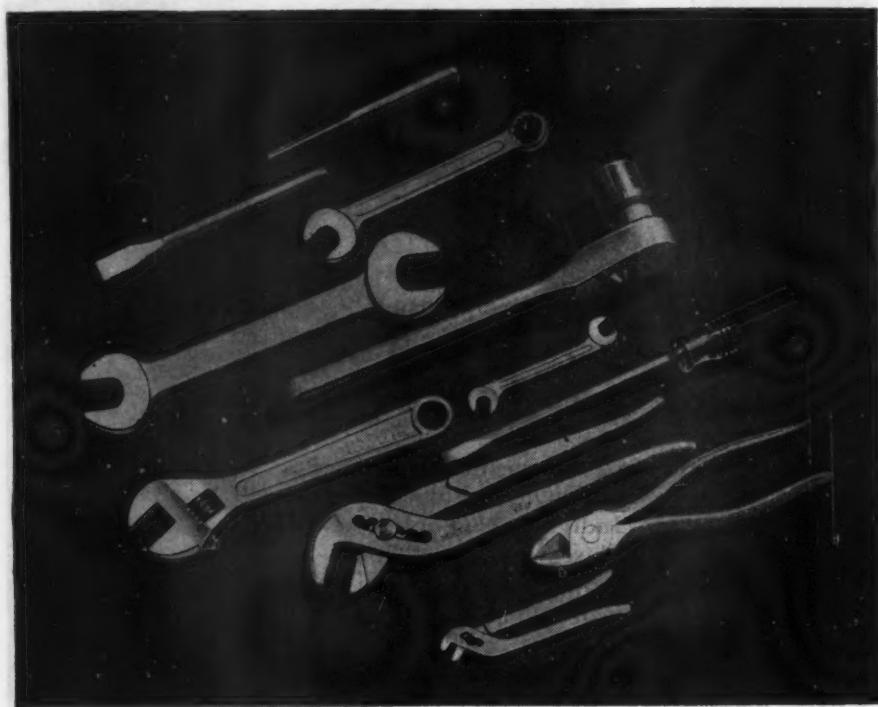
THE broken oil piston ring in Fig. 5 was repaired as follows: An unbroken ring off the same piston was used on top of the broken one, which was ground as shown. The unbroken ring provided the contour by which we lined up the broken ring. Both were nailed to the plate as shown. Before butting these two ends of the broken ring together, we took a very thin piece of shim brass and passed it through these two surfaces. This opened the butted joint enough to allow some of the bronze to go through the joint while we ran the bronze around it.

The repaired ring compressed and expanded as good as the unbroken one—a practical demonstration of the balancing, neutralizing, elastic or rubber-like hinge provided by the bronze weld.

Round-Bottom Grooving

WHEN the engine block shown in Fig. 6 arrived, bronze welding of these jobs had been considerably improved. Preheating was a thing of the past. The 90 deg. "V" had been

(TURN TO PAGE 96, PLEASE)



HERBRAND TOOLS

save time and labor

Are YOU looking for short-cuts and solutions to problems brought about because of the manpower shortage and the need for turning out more work in less time . . . If so—keep in mind that Herbrand Quality Tools *save time and labor*.

Advanced design and excellence of quality cause experienced mechanics to prefer Herbrand Tools . . . grip, balance, shape—all combine to cause these tools

to raise the efficiency of the worker to the highest degree . . . The present-day demand for these popular tools is great. Should there be an occasion when you are unable to get immediate delivery on certain numbers in our complete line—please understand that war needs come first. Herbrand Quality Tools are *worth waiting for*.

Sold through better jobbers everywhere

THE HERBRAND CORPORATION • Fremont, Ohio

Drop-Forged Tools Since 1881

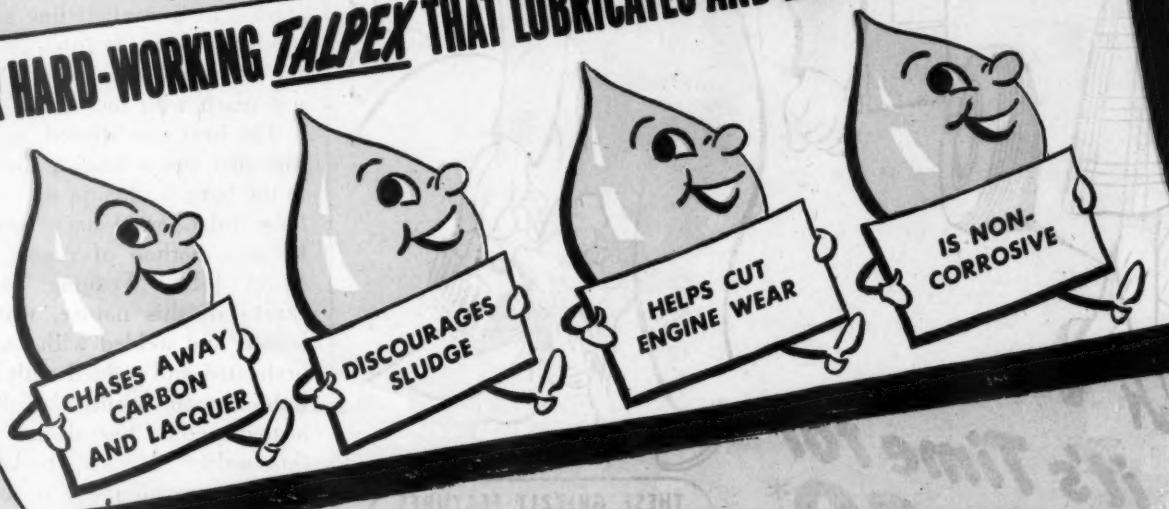
WHICH

DO YOU USE?

A LAZY OIL THAT DOES ONLY ONE JOB?

I JUST LUBRICATE

-OR HARD-WORKING TALPEX THAT LUBRICATES AND DOES 4 EXTRA JOBS?



An oil that merely lubricates—or that does only one or two of the other critical jobs in your engines—is a lazy oil. With today's operating conditions . . . the high cost of repairs . . . the scarcity of good spare parts . . . you simply can't afford to use a lazy oil.

To get the utmost in performance from your engines, use hard-working Shell TALPEX. This versatile oil has *all* the properties needed to do the many critical jobs necessary to keep your engines running smoothly and efficiently under the most severe operating conditions.

SHELL TALPEX

1. Has high detergency. Helps keep carbon, lacquer and foreign particles from adhering to pistons and rings, valves, ports.
2. Has exceptional Oxidation Stability. Holds to a minimum the formation of sludge, lacquer and other products of deterioration.
3. Has low Carbon-Forming Tendency. Reduces ring sticking and wear. Lengthens engine life.
4. Is non-corrosive to alloy bearings. Protects all lubricated engine parts against corrosion.

If the oil you now use is not doing all these jobs, it's lazy—should be changed to hard-working TalpeX. Ask the Shell man to show you why.



THE ALL-PURPOSE,
HEAVY-DUTY LUBRICANT
for trucks, buses, tractors, shovels,
stationary and marine Diesels.

UNPREHEATED WELDING

(CONTINUED FROM PAGE 94)

discarded, the round-bottomed groove taking its place not only on this one engine block job but on all those which follow.

The Time Saving Factor

INSTEAD of placing the engine block shown in Fig. 6 in the pre-heating furnace and slowly bringing it up to a welding temperature, we just hoisted it onto our turntable,

fastened it there, turned the block as required for an all-down hand weld and bronze welded it. Then we peened the valve seat and bore. Before the weld was at room temperature, we had it on our test stand and on its way to the machine shop—sooner than it could have been properly preheated and welded, in the pre-heating furnace, let alone waiting for it to cool overnight.

This bronze weld, by the way, is on the exhaust port and valve seat. The engine went back in service

sometime in July, 1943, and as far as I know, still is running.

Other jobs similarly done and pictured here also went back in service, but I cannot say how long they lasted or whether they are in service. One thing only is certain about these jobs. Up to now no complaint have I heard, or any order to discontinue the method of repair. This kind of work has been restricted to such jobs as were on their last legs; where no further reboring or grinding could be done and the expense of sleeving the job would not be considered.

THE solid bronze valve seat in Fig. 7 replaced a valve insert as well as mended a crack over to the water opening and beyond to the stud bolt hole.

Failures, oh, to be sure. We have them with this method as well as any other, but it costs less to find them. This one had a double crack which started in a straight line and wound up in a spiral, beyond the reach of the chisel and to a depth that I could not reach with the torch.

The next one started in a straight line also, but wound up also too deep in the bore to attempt its repair. Both these jobs would have been failures by any method of repair, except a sleeve job. Working on lengthy cracks of this nature, whether pre-heated and welded with cast iron or preheated and welded with bronze or welded with bronze by the unpreheated method has always ended for this welder in new cracks running part way or all the way around the cylinder bore crosswise to the crack or score being worked on.

One other such job repaired and held for a spare is used to show how not to make a cold welding repair, or how a cold welding repair has to be made without the proper tools and material to do a worth-while job. At that the job stood up for more than a year and a half before breaking.

The original break went through the exhaust port and valve seat and down into the bore, as usual with an additional crack running around the valve port wall, almost around its entire circumference. All the cracked area was bored out. A new cast iron valve insert was made and inserted to replace the cast iron removed. It was pinned in place on top of a copper ferrule.

(TURN TO PAGE 98, PLEASE)

Bear in mind...



*...it's Time for
Higher S.Q.**

* Safety Quotient . . . that means time to reline with Grizzly. Your drivers can rely on Grizzly brake lining for long wear, superior service. Grizzly Manufacturing Company, Paulding, Ohio.

THESE GRIZZLY FEATURES

MEAN HIGHER S. Q.

Exclusive asbestos-friction compound, molded on wire-grid back. • Constant high coefficient of friction throughout longer life. • Astonishing freedom from adjustment. • Precision machined for quick installation. • Quick stops . . . but smooth . . . and with softer pedal. • Most efficient braking performance under all conditions of service.



GRIZZLY
REG. U. S. PAT. OFF.
BRAKE LINING

SHULER AXLES FOR HAYES!



Yes sir, it's a Hayes Semi-trailer. And yes sir, the big generator it's carrying weighs fifty tons. And yes sir, the axles are Shulers. And yes sir, Shuler Axles are the best in the world!

But advertising talk aside, Hayes doesn't buy Shuler Axles because they like the

color of our eyes. They buy them because Shulers are tops in quality, yet cost no more—and also, possibly, because Shuler itself tries to give better service than anybody else in the industry.

If those sound like good reasons to you, we'd certainly like to hear from you.

SHULER AXLE CO., Incorporated, LOUISVILLE, KY.

Export Division: 38 Pearl St., New York, N. Y.

West Coast Warehouse: Ford & Derby Streets, Oakland, Calif.

UNPREHEATED WELDING

(CONTINUED FROM PAGE 96)

THE new crack, shown in Fig. 8, went through the new cast iron valve insert and the bore of the cylinder where the drill for the pinning operation to make the job water tight had gone too close to the cylinder wall. Both leaked. The same unpreheated bronze welding was done on this job, as shown in Fig. 9. How good it will turn out to be, we cannot say. At this writing, it is not

yet in service. The guarantee that "it will stand up until it breaks" is attached to this guinea pig just as to all the others.

ONE more item which may help decide the practicality of these repairs can be found in the following paragraph copied from the American Welding Society's 1942 edition of the Welding Handbook, Chapter 15-B-Bronze Surfacing, Page 627, which I am permitted to reprint here through the courtesy of the A.W.S. This para-

graph shows only that bronze has been used for the same purpose, in the same location, not by welding, however, but with the use of an aluminum bronze insert. We have been using manganese on all this work.

The quotation of this paragraph must not be construed as an approval by the A.W.S. on the procedure used in this work.

"The aluminum bronzes are quite as hard and wear resisting as the manganese or phosphor bronzes. Moreover, they retain their hardness and non-scaling qualities at reasonably high temperatures, 400 to 700 deg. Fahr. As seats for EXHAUST (caps mine) ports of high-duty internal combustion engines, aluminum bronze resists the valve pounding, gas scaling and scoring action unusually well."

While I am not sure that either aluminum or phosphor bronze can be applied with the torch, manganese can be. It is also worth noting here that there are bronzes on the market with a higher Brinnel rating than straight manganese. Perhaps a combination of bronzes may be the answer, or part of the answer, in our search for the one ideal bronze for this particular work—providing it retains all the theory-contradicting phenomena of the manganese bronzes of A.W.S. group 2, when properly applied to a properly cleaned cast iron surface, as has been demonstrated and illustrated in the pages of COMMERCIAL CAR JOURNAL from June, 1944, to date.

When you install Fel-Pro Engine Gaskets, Metallic Pump Packings, Grease Retainers and other Fel-Pro Sealing Materials, it's "bad news" for those troublesome "Little Drips" of water or oil.

Fel-Pro Gaskets are scientifically designed to be right for your toughest jobs... Accurately die-cut for the finest performance. Use them on cylinder heads, manifolds, oil pans, pumps

and any other place where "Little Drips" cause trouble. Available

in boxes or sets for your convenience. To make sure of the right Gasket for each job, see your Fel-Pro Jobber first.

FELT PRODUCTS MFG. CO.

1520 Carroll Ave. • Chicago 7, Illinois



Willard Reveals New Light-Weight Storage Battery

Dozens of new types of storage batteries, ranging from huge tank batteries down to tiny high voltage batteries weighing only a few ounces, have been developed and produced for the Armed Forces by Willard Storage Battery Co. during the war, Willard Executive vice president C. E. Murray has revealed.

One of the new storage batteries is so small it can be held in the palm of the hand; yet it delivers enough current to light an automobile fog lamp for an hour or more. War uses of this and many other special wartime batteries are still military secrets.

A 36-volt battery, used in balloon-type weather forecasters which broadcast weather information from stratospheric heights often guided bombing operations over Germany. The batteries—smallest high-voltage storage batteries ever produced in volume—are vacuum packed, like coffee, and retain their charge indefinitely.



THE
WEATHERHEAD
"LINE":



Fittings



Fuel Lines



Dash Controls



Drain Cocks

**World's Largest
Manufacturer
of Fittings and
Flexible Hose
Assemblies**

The
WEATHERHEAD
COMPANY
Cleveland, Ohio



"He tells me I should bring the car in for a check-up every day during this weather!"

CCJ NEWSCAST

Interoffice Recruitment Methods Relaxed for Veteran Employment

So that more jobs will be made available to qualified veteran applicants reentering the labor market or unemployed as the result of war production cutbacks, a relaxation of interoffice recruitment methods—as they apply to veterans—is being put into effect by local offices of the United States Employment Service, the War Manpower Commission has announced.

As a result of the new procedure, USES will accept and process, for interoffice recruitment, job orders from employers who specify they wish to employ veterans, even though such employers may be engaged in work of a less essential nature than was formerly demanded by USES.

No order will be accepted for interoffice recruitment if qualified veterans or non-veterans are available in the local labor market.

It was pointed out by WMC that veteran applicants will first be told of higher priority jobs, and if they do not qualify for such jobs or refuse to accept the jobs offered, they will then be told of the lower or non-priority orders that have been placed by employers under the new interoffice recruitment program.

Hildreth President of Chilton, Buzby of Automotive Unit

Joseph S. Hildreth was elected president of Chilton Co., publishers of business and industrial magazines, at a meeting of the directors on June 21. He succeeds C. A. Musselman, one of the founders of the business, who became chairman of the board. G. C. Buzby was named to succeed Mr. Hildreth as head of the company's automotive division.

An executive of Chilton and its predecessor companies for the last 30 years, Mr. Hildreth has been a vice president and director of the company for 21 years, and president of the automotive unit for the last 10 years. He entered the business magazine field in 1909 as advertising manager of *Motor* and *Motor Boating*, and resigned in 1915 to become one of the publishers of an automotive magazine which was a forerunner of *Automotive and Aviation Industries*, a Chilton publication.

Mr. Buzby joined Chilton upon his graduation from Princeton in 1920. He has served for many years as eastern territorial representative for *COMMERCIAL CAR JOURNAL* and as manager of the company's direct mail division.

Chilton publications include: *The Iron Age*, *Hardware Age*, *Department Store Economist*, *Boot and Shoe Recorder*, *Optical Journal and Review of Optometry*, *Jewelers' Circular-Keystone*, *Automotive and Aviation Industries*, *Motor Age*, *COMMERCIAL CAR JOURNAL*, *Spectator Life Insurance in Action*, *Spectator Property Insurance Review*, and *D. and W.*

Because of the necessity for conserving paper, 24 pages of advertising have been omitted from this issue of

Commercial Car Journal

ICC Examiner Recommends Reflectors for Warning Signals

ICC Examiner John T. McHale has recommended the unrestricted use of reflector warning signals on motor vehicles stopped on highways at night upon a find-

ing that such reflector devices when conforming to the ICC specifications heretofore prescribed are adequate and safe.

Examiner McHale holds that such devices must conform to the minimum requirements of the specifications set forth in Rule 3.3491 (g) of the Motor Carrier Safety Regulations Revised, and further stated that, with the exception of vehicles hauling inflammables, the extent of the use of reflectors will be governed by the judgment of motor carriers who presumably will select the type of warning signal which they deem best adapted to the conditions prevalent in the territory they serve.

Income of Class I Carriers Down 21.9 Per Cent for 1944

The final net income of Class I motor freight carriers in 1944 slumped 21.9 per cent from 1943 according to a report issued recently by the Interstate Commerce Commission. The report covered 1595 trucking concerns designated as Class I.

(TURN TO PAGE 102; PLEASE)

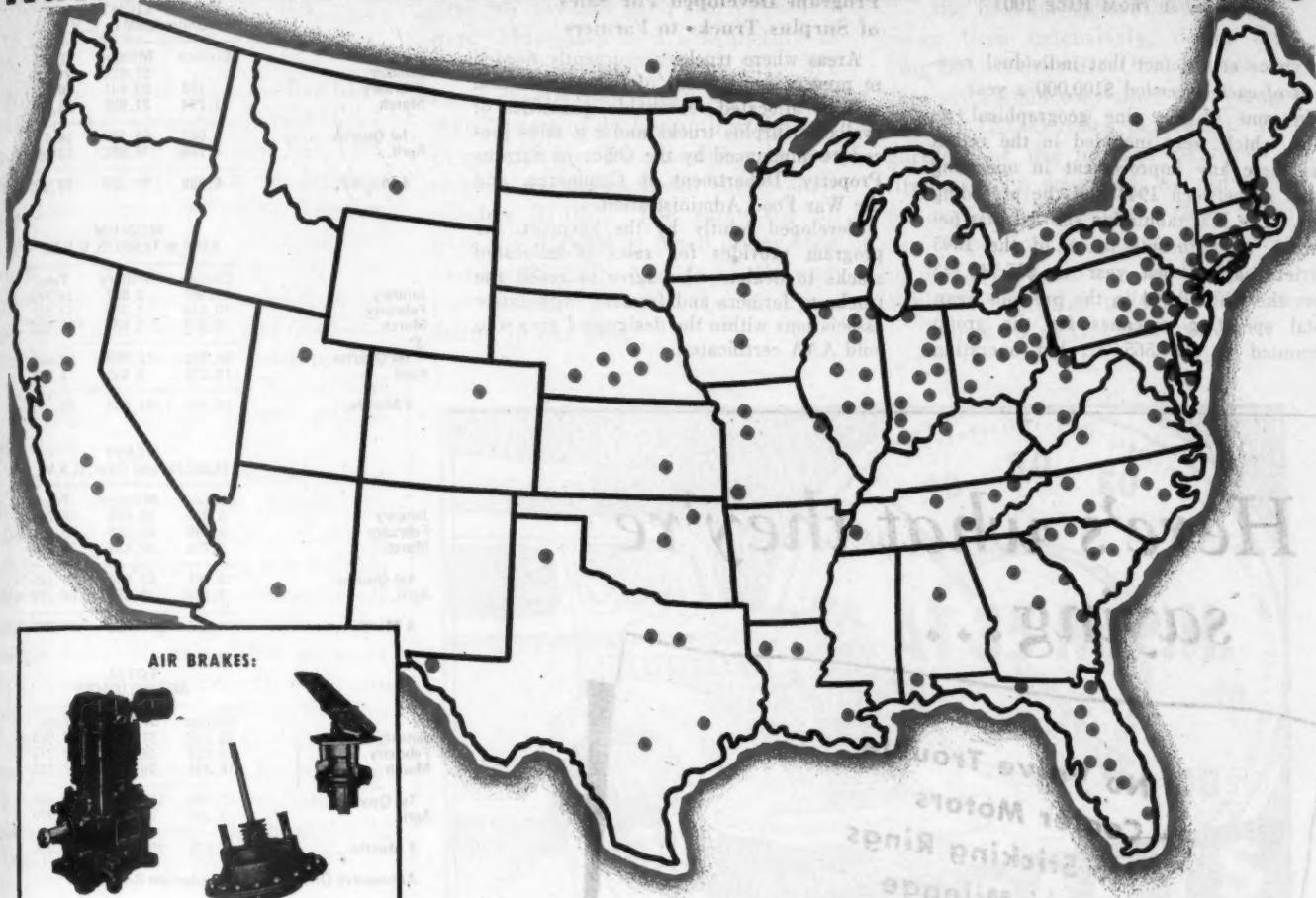
1945 Commercial Truck Quotas by Companies

Commercial truck production company quotas for 1945, totaling 233,472 units, have just been announced by the War Production Board.

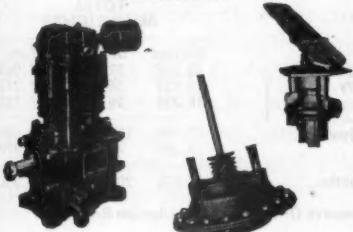
While the production of an additional 188,700 trucks has been authorized for the second half of 1945, company quotas for these units have not as yet been assigned.

Manufacturer	1945 COMMERCIAL TRUCK PROGRAM					Total
	Light	Medium	Light Heavy	Heavy-Heavy	Off-Highway	
Autocar			2,059	1,933		4,082
Available		18	23	4		43
Bloderman		2	5			7
Brookway		301	1,052	867		2,220
Brown Equip. Co.				23		23
Caterpillar					175	175
Chevrolet	13,517	48,795				62,312
Corbitt			228	203		431
Dart		8	16	16	68	108
De Martin			7			7
Diamond T.		3,406	1,421	144		4,971
Divco		1,712				1,712
Dodge	6,557	14,055	1,162	4	28	21,774
Duplex						32
Euclid					487	487
Federal		1,314	1,704	180		3,178
Ford	12,849	41,188				53,837
Four Wheel Drive			269	393	86	748
GMC Truck and Coach	2,106	8,773	5,380	1,640		17,878
Hendrickson			58	26	12	38
International Harvester	4,944	14,408	12,323	987	24	32,000
Kenworth				239	95	334
Koehring					56	56
Linn					16	16
MacDonald			15	6		21
Mack		1,074	3,794	1,810	192	6,870
Marmon-Herrington			58			58
Oshkosh			21	182	36	238
Peterbilt				208	100	308
Reo		3,780	430	48		4,258
Sterling			45	528	91	664
Studebaker		4,000				4,000
Walter			69	188	8	285
Ward LaFrance				112		112
White		1,349	7,359	596		9,304
Willys-Overland	227					227
Total		40,000	144,181	37,444	10,417	233,472

Nation-wide Service on Midland Power Brakes



AIR BRAKES:



AIR: Showing the 7.3 C.F. Compressor, fully compensating foot control valve and diaphragm chamber contained in Midland Air Brake Kits

VACUUM BRAKES:



VACUUM: This reaction type control valve, check valve and cylinder are a part of Midland Vacuum Brake Kits.

Those Who Know POWER BRAKES Choose MIDLAND

Midland Distributors are Located in 143 Key Cities

YOU can depend upon Midland Power Brakes for long service, free from trouble—at lower cost. Simple design, thorough engineering and rugged construction are back of Midland dependability.

Midland Brakes—both air and vacuum—are backed by our famous "Factory Rebuilt Exchange Plan."

Midland's nation-wide distributing and service organization is always at your service—a guarantee of safe operation and maximum haulage for every truck equipped with Midland Power Brakes. See your distributor, or write to us for complete information.

THE MIDLAND STEEL PRODUCTS CO.

West 106th Street and Madison Ave. • Cleveland 1, Ohio

Export Dept.—38 Pearl Street, New York, N. Y.

MIDLAND

CHRISTENSEN

POWER BRAKES

"Those Who Know POWER BRAKES . . . Choose MIDLAND!"

CCJ NEWSCAST

(CONTINUED FROM PAGE 100)

by virtue of the fact that individual revenues of each exceeded \$100,000 a year.

In none of the nine geographical regions which were included in the report was there any improvement in operating ratios as between 1944 and the preceding year. The ICC tabulation showed that net income, after income taxes, of the 1595 carriers sagged last year to \$15,743,143 from the \$20,170,344 in the previous year. Total operating revenues for the group amounted to \$837,565,737, but operating

expenses claimed \$813,831,509 of that total.

Program Developed For Sales of Surplus Trucks to Farmers

Areas where trucks are urgently needed to prevent impairment of farm production will be allocated reasonable quantities of available surplus trucks under a sales procedure announced by the Office of Surplus Property, Department of Commerce, and the War Food Administration.

Developed jointly by the agencies, the program provides for sales of allocated trucks to dealers who agree to resell the trucks to farmers and farmers' cooperative associations within the designated area who hold AAA certificates.

Here's what they're saying...

- No Valve Trouble
- Cooler Motors
- No Sticking Rings
- Better Mileage

We have experienced no valve trouble or sticking rings since starting to use Lubri-Gas. And we have not had our usual amount of trouble with heat during the summer months.

In the Third Quarter of 1944 our mileage totalled 96,327 yet we used over 1,000 gallons less gasoline (Lubri-Gas treated) than in the Second Quarter where our mileage was 88,110 without Lubri-Gas.

We are satisfied that our engines are in much better condition since using Lubri-Gas.

C. O. Thompson, President
Gray Line Tours, Inc.
Charleston, S. C.



LUBRI-GAS

Registered Trademark

LUBRI-GAS LABORATORIES
221 No. LaSalle St.
Chicago 1, Illinois

about ...

LUBRI-GAS

USED BY: International Harvester Co., Rock Island, Ill.; Rock Island Arsenal, Rock Island, Ill.; Stone & Webster Construction Co., Knoxville, Tenn.; Ossman & Norman, Madison, Wis.; State and County Highway Divisions of Illinois, Indiana, Ohio, Texas, Montana, Kansas, Iowa; Yellow Cab Company, Louisville, Ky.; Memphis Army Service Forces and Various U. S. Army Engineers and Other U. S. Army Divisions; Schulze Baking Company, Chicago, Illinois; Keeshin Motor Express Co.; Huber & Huber Motor Express.

Monthly Truck and Truck Tractor Production

LIGHT Under 8,000 lb. G.V.W.

	Civilian	Military	Total
January	159	21,621	21,821
February	1,784	20,641	20,800
March		21,925	23,709
1st Quarter	1,943	64,187	66,130
April	4,746	18,352	23,098
4 Months	6,889	82,539	89,228

MEDIUM 8,000 to 16,000 lb. G.V.W.

	Civilian	Military	Total
January	11,183	3,527	14,710
February	10,534	3,378	13,912
March	12,820	3,994	16,823
1st Quarter	34,548	10,899	45,445
April	10,275	3,645	13,920
4 Months	44,821	14,544	59,365

HEAVY 16,000 lb. and Over, G.V.W.

	Civilian	Military	Total
January	3,836	26,898	30,734
February	3,339	26,162	29,501
March	3,728	30,474	34,200
1st Quarter	10,901	83,534	94,435
April	3,984	26,288	30,252
4 Months	14,865	109,822	124,887

TOTAL ALL WEIGHTS

	Civilian	Military	Total
January	15,019	52,046	67,065
February	14,032	50,181	64,213
March	18,339	56,393	74,732
1st Quarter	47,390	158,620	206,010
April	18,985	48,285	67,270
4 Months	66,375	206,905	273,280

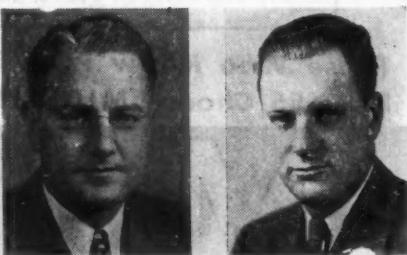
Automotive Division—War Production Board.

Monthly Truck Trailer Production

1945	Military	Civilian	Total
January	12,472	2,861	15,333
February	13,243	2,251	15,494
March	14,351	2,151	16,502
1st Quarter	40,066	7,283	47,329
April	13,477	1,997	15,474
4 Months	53,543	9,280	62,803

Automotive Division—War Production Board.

(TURN TO PAGE 130, PLEASE)



Richard T. Purdy, left, has been promoted to manager of the Motor Truck Division of the Automobile Mfg. Assn. and the Military Vehicles Division of the Automotive Council for War Production. Walter S. Wallace, right, has been named district manager of the newly created sales district of the Replacement Tire Division of the B. F. Goodrich Co. Salt Lake City branch

TIRE SAVING OF A "NON-ESSENTIAL"

(CONTINUED FROM PAGE 48)

forms dealing with the same tire have come in and been duly jotted down on the tire record card. On Jan. 17th the tire went flat again at mileage 63618 after doing 560 miles. The tire was repaired and put on again on truck No. 511 at speedometer mileage 42240. It ran 400 miles to mileage 42640 and went flat and came off. Repaired once more it went on the left rear wheel of truck No. 470 at speedometer mileage 64010 and is still there.

The tire record card shows us that this tire was recapped March 28, 1944, at a cost of \$10.65. Costs of other repairs to the tires are kept on other forms which are consecutively numbered and thus unavailable for release for publication. But we know by consulting these records what tire repair costs are. Incidentally, our costs are grouped according to size of tire rather than by the individual tire. We classify our tires for maintenance costs by grouping them under a classification according to sizes.

Code Numbers for Cost Records

GENERAL office accounting has set up a series of code numbers for every separate operation of the business. All general garage operations come under code number 32. All operations concerning shipping and delivery, meaning trucks, come under code number 31. This is information purely for accounting purposes and does not, therefore, appear on the tire record cards. But for cost record purposes all tires size 900x20 are listed under code number 31-057, the 31 designating that the cost has to do with trucks and the 057 designating that this cost has been assessed to tires of the 900x20 size; 750x20 tires are listed for cost accounting purposes under code number 31-257. Size 32x6 under number 31-457 and so on, according to the sizes of the tires in question.

We do not assess costs of maintenance against the individual tire because a particular tire may accumulate a lot of expense due in no manner to its own fault. At the end of every month we total the costs of tire maintenance (not including labor) per each classification, that is, ac-

cording to group size. Then we divide this cost by the actual number of tires we have in each size classification. This gives us a true picture of tire costs per each size of tire. We know exactly how much all tires size 900x20 cost us each month in the way of maintenance by consulting the cost records as shown listed under code number 31-057. The same for all tires size 750x20 as listed under code number 31-257. And so on through the various tire size classifications found in our fleet.

12,000 Miles per Recap

AS FAR as we know, we were one of the first businesses in Detroit to recap tires extensively, doing this long before the war. Our wartime recaps are satisfactory since we average around 12,000 miles per recap. Regardless of the number of times a tire has been recapped, we put them on any wheel needing a tire. Since tire inspection is a constant process in our garage, we can safely do this. While we find that mileages decrease

(TURN TO NEXT PAGE, PLEASE)

★ INSPECT Frequently

★ REPAIR Where Possible

★ REPLACE When Necessary

Put extra punch and power into your electrical circuits, reduce maintenance, highway electrical repairs and operating costs with NIEHOFF Approved Quality Products.

Each NIEHOFF Part is correctly designed and engineered to perform its function efficiently, economically and dependably. Each NIEHOFF Part is attractively packaged and plainly marked for quick easy identification. A complete simplified catalog with a single code system for all makes of trucks speeds up ordering and service.

A complete line of NIEHOFF Products is available through a national network of NIEHOFF Jobbers

C. E. NIEHOFF & CO.
4925 Lawrence Ave., Chicago 30, Ill.
Branch: 1342 S. Flower St., Los Angeles 15, Calif.

NIEHOFF

APPROVED
QUALITY
PRODUCTS

TIRE SAVING OF A "NON-ESSENTIAL"

(CONTINUED FROM PAGE 105)

with successive recappings, we have gained something in that we now recap tires that most fleet operators would consider fit for junk only. The wartime rubber seems to be softer than the pre-war variety because we pick up more foreign matter than we ever did.

We give our tires a major inspec-

tion at the same time as the trucks get a battery check and a thorough lubrication. This is every 800 miles. Additional tire inspection is made all the time by mechanics working on truck repairs.

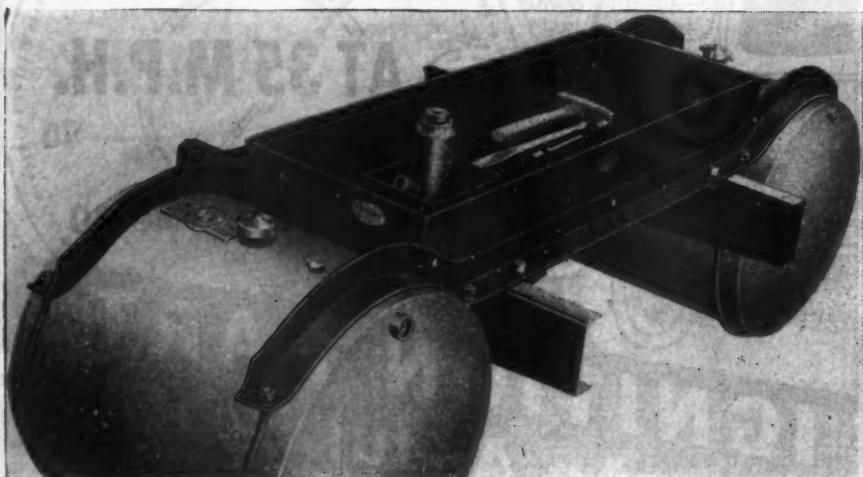
Sales Supervisor Checks Tires

ANOTHER inspection is given, perhaps three times per week, by a sales supervisor who, without previous notification of the driver, drops around to the garage and picks three or four trucks out at random—not

only for tire inspection but an overall body and radiator inspection. The fact that the sales supervisor does not signal his intention to inspect beforehand, that he is apt to pick on any truck, has a tendency to keep drivers on their toes in the care of their trucks and in keeping up tire pressure. The sales supervisor fills out a "Supervisor's Report on Truck Condition" form. The data on one form will be compared to data on following forms. Thus if a driver is consistently careless of his truck or of his tire inflation it shows up in black and white on this form. We check on the careless driver.

Our 800-mile major inspection by the tire, grease and battery men means that the 1½-ton panel jobs are inspected for tire wear every three weeks. The larger trucks and highway units are inspected once and sometimes twice a week because of this arbitrarily-set mileage figure. This may seem pretty frequent. But remember, we cannot get new tires.

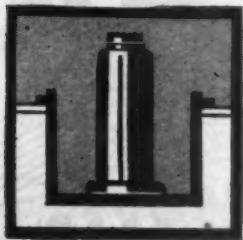
PRIOR *Safety* TANKS AND TOOL BOX SETS



Pat. Pend.

PRIOR Safety TANKS and TOOL BOX Sets

The Prior Safety Tank and Tool Box set offers special features that every truck owner can appreciate . . . curved angle iron suspension; large capacity fuel tanks; tool box across the frame, giving assembly streamlined appearance, can be securely locked, and contains special well to keep hydraulic jack upright. (Illustrated below.) Special battery well can be provided, if desired.



SAVE MONEY AND PROTECT EQUIPMENT

Safety fuse plugs and non-spill caps reduce the hazards of fire and explosion when your truck is equipped with PRIOR Safety TANKS. Also, you can eliminate frequent refueling stops because of their large capacity . . . and they add to the good appearance of your equipment.

WIRE FOR DEALER'S NAME
OR SEND THIS COUPON TODAY

PRIOR PRODUCTS

Please send complete information about Prior Safety Tanks and name of nearest dealer.

Name _____

Street _____

City _____ State _____

C.I.

DALLAS, TEXAS.
CLINTON, ILLINOIS

PRIOR PRODUCTS

Your Best Guarantee of a Prosperous Independent Business

the Seven League Steps taken by your*

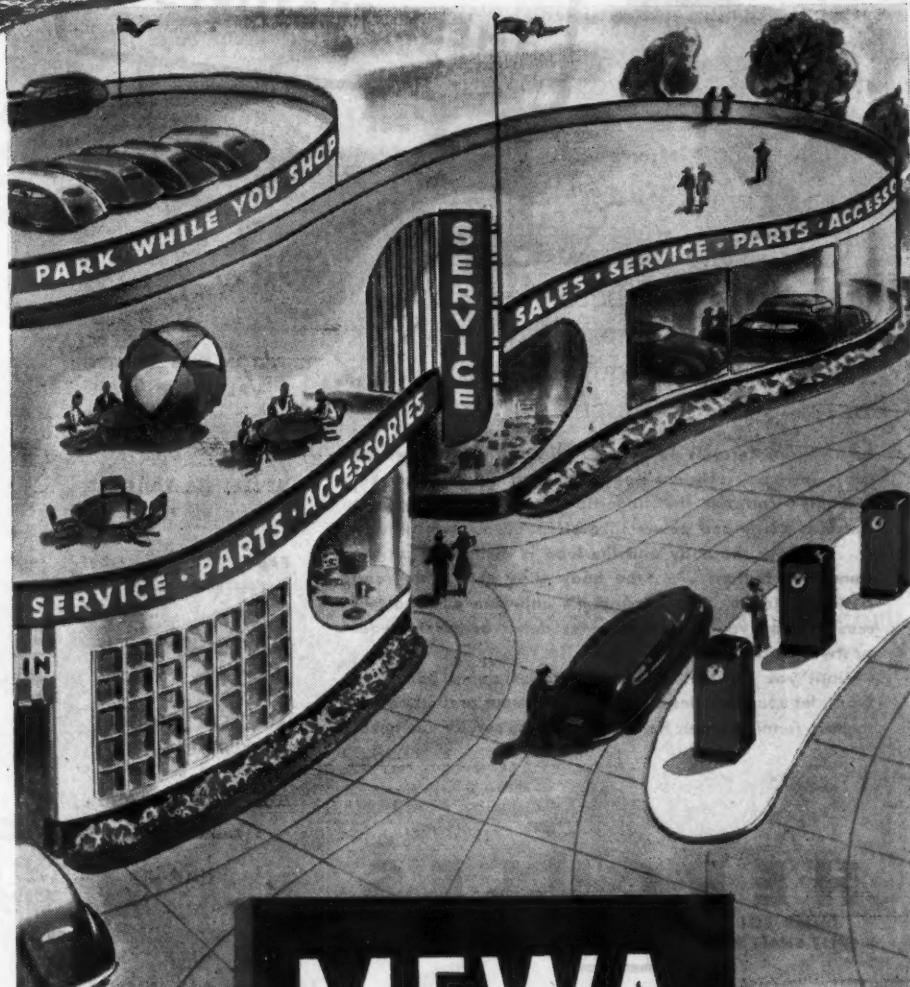
Independent Automotive Wholesalers



Every time you buy from your Automotive Wholesaler you help sustain your own independence . . . help make your *dream station of tomorrow* come true! Whatever your dreams and ambitions as an Independent Automotive Service man, they can only be realized through the maintenance of a free and independent Automotive Wholesaling System of Distribution. Only through this system, in war and peace, has it been possible for you to obtain everything needed to keep 'em rolling, whatever their make or whatever their age! Buying from whom you please is vital to your continued independence.

* * *

In the story, *Seven League Boots* saved the wearer thousands of steps by making each step seven leagues long. The Independent Automotive Wholesalers are your real-life *Seven League Boots*. They save you hundreds of time-wasting, expensive steps every day by making available from one source all needed parts, equipment, supplies and machine shop service.



M·E·W·A

BUY WITH CONFIDENCE
WHERE YOU SEE THIS INSIGNIA



MOTOR & EQUIPMENT WHOLESALERS ASSOCIATION • 309 West Jackson Blvd. • Chicago

628

JULY, 1945

Use postage-paid card inserted in this issue at page 59, for free information on advertised products

107

**TIRE SAVING OF A
"NON-ESSENTIAL"**
(CONTINUED FROM PAGE 106)

We allow only a 5-lb. variation in tire pressure. There is no excuse for drivers leaving with under-inflated tires. Many large steel posts dot the main floor of the garage. Every second one of these posts has an air hose. Trucks on the floor are never more than a few feet away from an air hose. The grease rack has an air hose as well.

Signs Prove Effective
WE WEAVE a certain amount of psychology into our tire maintenance program. We use signs, very effectively, to get drivers to watch tire pressures, among other things. These signs are posted at the left hand side of the exit door. One such tire sign reads, "ALL DRIVERS CHECK YOUR TIRES FOR AIR PRESSURE TODAY." This sign, and the others, work well for us.

I have seen drivers, on the point of leaving, back up to an air hose after

reading the sign. Just so they won't miss the sign we illuminate it with an electric bulb in such a way as to draw their attention. To avoid monotony, to add punch, we vary the day in the week for putting the sign out. Monday this week, Thursday next week and so on.

I forgot the sign the other day. One of the new drivers said, "Well, what's the sign for today?"

Our weather sign says, "Drive carefully today. . . . Wet streets." Another says, "Shut off motors at all stops."

We think so much of the value of these signs that we are going to drape a huge sign between the two large steel posts a vehicle passes between on entering the garage. We are going to hang streamers down from this sign to brush across the windshield in front of the driver's face.

WE DO 75 per cent of our own mechanical repair but no reboring; 80 per cent of body work goes out. Normally, we did all of this work ourselves. Road repairs and failures are exceptional with us. I don't believe we have had more than a hundred dollars' worth of repair work done due to road failure.

Our garage is seriously understaffed which makes preventive maintenance particularly necessary in our operation. Three part-time men do the battery, lubrication and periodic tire inspection. Three mechanics and a working foreman do repairs. There used to be 10 mechanics with a foreman in supervisory capacity only. One man works half day Saturday and all day Sunday on body repair. We used to carry enough staff in this department to build many of our own bodies.

Pre-war, Vernors Ginger Ale customers got 24-hour service. Many special deliveries were made. This has been stopped. Even regular customers, formerly called on two or three times a week, are now serviced once or twice every two weeks.

Special Bodies Speed Loading

I WOULD like to describe the loading system employed for our ton-and-a-half panel jobs. Bodies for these, incidentally, were built in our own shops. The loading system is unique and very fast. As with much of our machinery and dispensing equipment, (TURN TO PAGE 110, PLEASE)



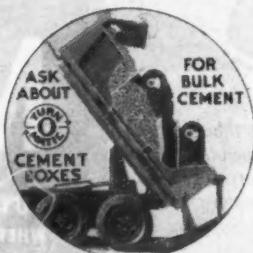
Only from Hercules do you get all these advantages for easy, low-cost, efficient operation and maintenance. For example—consider the fingertip controls which operate Hercules hoists and power take-offs. Pull out two buttons . . . up goes the body and the load is dumped. Push the same two buttons . . . the body slips down into read position. Simple, isn't it? And it's only one of a host of reasons why you'll want Hercules dump bodies for your postwar trucks.

Until you can get the new Hercules dump body you want, let your Hercules distributor keep your present equipment in running order. He will furnish the service you need.

HERCULES
DUMP BODIES AND HYDRAULIC HOISTS
SPLIT SHAFT POWER TAKE-OFFS • COAL CONVEYORS

Ask About Turn-O-Matic Cement Boxes for Bulk Cement—Now Available—Write Today!

HERCULES STEEL PRODUCTS COMPANY . . . GALION, OHIO





TOMORROW'S RINGS TODAY



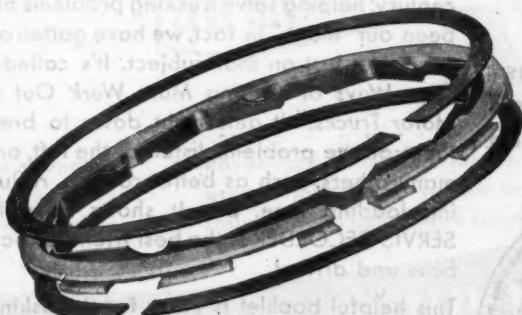
PISTON RINGS

(U. S. Pat. No. 1,771,198)

Here is the piston ring set-up to bring back that pep and power. The modern, new style design of Moog X-Plus Piston Rings stops oil pumping and blowby — gives worn motors **FULL POWER** results.

For low unit pressure — flexibility — no hammer handle installation — metered lubrication — battleship oil ports that prevent carbon clog — immediate seating and other outstanding engineering features, you'll want Moog X-Plus Piston Rings — **FULL POWER** performance — no costly comebacks.

Write for Moog **FULL POWER** story today.



A different type ring
for each groove —
each ring has its job
and does it —
delivers **FULL POWER**.

FOR MORE THAN 25 YEARS MOOG HAS LED IN SPRING SUSPENSION SERVICE

MOOG
ELECTRICALLY
HEAT TREATED
SPRINGS

MOOG
COIL ACTION
REPLACEMENT
PARTS

Springs where Springs are used. Coil Action where front end parts are used.

MOOG INDUSTRIES, INC.

MOOG PISTON RING CO. ST. LOUIS SPRING CO.

MOOG COIL ACTION PARTS COMPANY

General Offices: EASTON AVE., ST. LOUIS 14, MO.

TIRE SAVING OF A "NON-ESSENTIAL"

(CONTINUED FROM PAGE 108)

it is a product of Mr. Verner's mind and of our own engineers.

Our panels have detachable bodies. We buy only a truck chassis. Inside of this chassis, using four $\frac{5}{8}$ -in bolts, we have fastened a subframe of channel steel upon which rests the panel body solely by virtue of its own weight. Steel cleats, two in front, two

rear, fastened to this subframe protrude outwards 6 or 7 in. and keeps truck bodies from falling off as the truck jounces and sways along.

At all four corners of the truck body steel bands, with a hole drilled through the top end for a hook to go through, have been fastened. Coming to the shipping rooms a chain hoist running along an overhead rail hooks onto the empty body, lifts it off, carries it inside and deposits it on a waiting hand truck. Then the hoist is hooked onto a fully loaded body

which is lowered down onto the waiting motor truck chassis. The hoist chains are spread to permit of an even lift by a framework of channel steel. We can take off an empty body, put on a fully loaded one and get the truck back on the route in two minutes, if necessary.

A great lack of manpower, a non-preferred business classification, has caused us to use every available method to prolong the life of tires and equipment. Of course, we need new tires. But we have discovered that with care and attention tires will give astonishing mileages. Without tire conservation our fleet might have been forced off the road completely by now.

END

(Please resume your reading on P. 49)

Lucite Used In Lenses of Army's Ducks

In an effort to reduce the breakage of the customary sealed-beam lenses used on amphibious vehicles or "ducks," the Army two years ago installed a number of these lenses molded of "Lucite" methyl methacrylate resin. Information just released by the lens manufacturer indicates that the lenses of "Lucite" have been satisfactory in every respect and that they are not broken or smashed by the waves and sand as were the lenses formerly used.

Besides standing the terrific battering of the waves and sand when the "ducks" hit the water, the injection-molded lenses are not affected by salt water or the varying weather conditions to which they are exposed. They must meet temperatures ranging from minus 40 to plus 190 deg. Fahr.

As yet, the automotive industry, largest prewar user of plastics, has given no indication of plans for the lenses. "Lucite" and other plastics were widely used on 1942 cars, particularly for taillight lenses, radiator ornaments, and other exterior applications.

Detroit Diesel Trains Mechanics

Training of the diesel engineer and service man of tomorrow is becoming increasingly important in the postwar plans of Detroit Diesel Engine Division of General Motors. To date more than 8000 military personnel have been graduated in their training program at the GM Institute in Flint, Mich., as well as many additional thousands through universities, colleges and other educational institutions.

Comprehensive training helps in the form of catalogs, charts, blow-ups as well as cut-away parts, sub-assemblies and complete engines are now being made available daily to the Engineering Departments of colleges and accredited schools across the country. The printed material is furnished them free-of-charge while the engines and other parts may be purchased at a special "school price."



**Delays
Idle Time
Driver Morale
Overtime Problems
Speeding, Accidents
Insurance Reduction**



The Servis Recorder
Tells Every Move Your Truck Makes

ONE of the major reasons why our war tire program is absorbing such a tremendous poundage of rayon for tire cords is because tires of this construction generate less friction heat. As you know, friction heat eats up rubber...weakens the tire. Its effect is so severe that a reduction of only a few degrees means a marked improvement in tire performance.

The molecular structure and the physical uniformity of rayon result in better heat dissipation. Because of this, a rayon-cord tire will naturally

run cooler by 10°F...in tires of equal thickness. However, the thicker the tire, the hotter it runs. Since rayon retains its tensile strength better at high running temperatures, fewer plies are required for comparable service. Thus, rayon cord means an even further reduction in the problem of tire heat.

This ability of rayon-cord tires to run cooler is one of the scientific explanations for the longer life, the greater mileage and the increased safety they give in actual operation.

Source of data: Hearings before a Special Committee Investigating the National Defense Program. United States Senate—Seventy-eighth Congress, First and Second Sessions.

Less with Rayon Cord

"RAYON-CORD SYNTHETIC TIRES GIVE TWICE THE MILEAGE BEFORE SCRAPPING"...

Eastern Mass. St. Ry. Co.,

Winner of ME pennant for 6th consecutive year

H. I. SULLIVAN, Vice President of this largest bus operator in New England, reports: "Records we have recently begun to keep show 74 S-7 synthetic tires with rayon cord averaged 36,400 miles before scrapping, as compared with 16,400 miles for 25 S-7 tires with other cord. Furthermore, we consider that rayon cord has been an important factor in sustaining our outstanding record for safety and maintenance efficiency."



MORE SAFETY

SAFETY ZONE

Less friction heat, higher tensile strength and greater uniformity of rayon tire cords mean more safety at high running speeds.

LESS OPERATING COST



Rayon-cord tires give longer life, greater mileage...reduce impact failures, road delays, tire renewals.

AMERICAN VISCOSA CORPORATION

AMERICA'S LARGEST PRODUCER OF RAYON TIRE CORD, YARNS AND STAPLES
Sales Offices: 350 Fifth Avenue, New York; Providence, R. I.; Charlotte, N. C.; Philadelphia; Marcus Hook, Pa.; Roanoke, Va.; Parkersburg, W. Va.; Louisville, Ky.; Nitro, W. Va.; Front Royal, Va.

FLEET AND MEN PROFIT BY PROFIT SHARING PLAN

(CONTINUED FROM PAGE 49)

directors of our company feels that our adoption of this plan marks a forward step in our history. It will make it possible for all of the qualifying members of our personnel to acquire a sizeable retirement fund.

"Our firm has adopted this plan because it thinks that it is good business to do it. We are not trying to take the place of a benevolent society

or a mutual insurance company. Neither are we promulgating an old-age pension plan. It is simply a profit sharing plan that will give the employe the opportunity to share the fruits of his labor.

"The management believes firmly in the fundamental soundness of our business and feels certain that our company will continue to succeed. We realize that the measure of our success will depend a great deal upon the cooperation and full-hearted efforts of our employees.

"Our company thinks that profits should be shared with employes. We think that they will respond to this sentiment with a sincere desire and determination to try to increase the company's profits. We, the management and the employes are associated together in a mighty good company—an institution that is engaged in an essential business which should be good even when other lines of business are stagnant.

Everyone who draws a pay check from any commercial firm should try to keep in mind the fact that all wages, salaries, commissions, bonuses, dividends, interest and profit sharing all have to come out of profits. Therefore, we should put our best efforts into anything that we do day by day. This axiomatic rule should apply to the man who is a manager as well as his employes.

"We are finding that the employes are responding to this innovation with a genuine desire to increase the company's profits. This is particularly evident in accident prevention by our drivers. Charles Fields, our boss driver, has piloted our equipment for 10 years without an accident or scratched fender, while John W. Whitman, another one of our drivers, has had a perfect record for nine years. Our other drivers have also made good records."

Bank Appointed Trustee

LET us examine in detail the profit sharing plan which has had a wonderful effect in maintaining the morale of the company. It designates the National Bank of Commerce of Seattle as its Corporate Trustee without any hindrance from the company. In fact, the company has an important proviso in the agreement which says, "No amendment shall at any time be made which shall entitle the company to receive any part of the trust fund. No amendment shall at any time impair the rights of any participant or his beneficiary, or estate, in the assets constituting the trust estate at the time of such amendment without the prior specific written consent of such participant or person entitled to his interest."

Participation Qualifications

ACCORDING to the plan, every regular employe of the company who has completed five years of service

(TURN TO PAGE 116, PLEASE)

AT THE SIGN OF
THE "FLYING PISTON"

SIMPLEX
PISTON RINGS
RECONDITION for
LONGER LIFE

**Only a Car
Away**

-Shank's Pony

WITHOUT a car, a man's afoot;
and walking means wasting—
wasting time that could and should
be used in war effort.

A man's car represents his forty years advancement in transportation over the pre-car age. Without it, he steps back into the slow-motion era.

"Rings made by Simplex", besides satisfactorily filling military requirements on land, sea and in the air, have also adequately met demands of distributors and service shops. They have done much towards preventing a break-down

America's vital home-front transportation system of both cars and trucks.

ARMY
E
NAVY

BUY WAR BONDS AND KEEP THEM

SIMPLEX
PISTON RINGS

SIMPLEX PRODUCTS CORP., Cleveland, O.

WHEN

ROAD SHOCKS CAUSE
THESE PROBLEMS

CLE-AIR

SPRING CONTROL UNITS
solve them!



TIRE WEAR—Cle-Airs prevent the bouncing on and off the road that buffs off the rubber. They also eliminate damaging "side-sway scuff" to the tires because they put an end to all rolling and swaying.

BODY RATTLES—Rigidly constructed bodies cannot take up chassis weave and ceaseless jarring of road shocks. Cle-Airs, by absorbing shock and eliminating chassis weave, prevent rattles, loose joints, and other body deterioration.

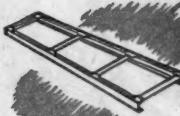


SPRING BREAKAGE—Because springs must carry loads of greatly varying weights, breakage is not uncommon.

Cle-Airs reduce breakage because their control of recoil affords absolute spring control under all road conditions that are encountered.

• Dual acting (hydraulic and pneumatic), Cle-Air Spring Control Units effectively absorb road shock. They are easily installed on all types of trucks, buses and trailers. Precision built, with simple servicing, they will last as long as the vehicle. Write for booklet.

MOTOR TROUBLES—Road shocks and vibration cause numerous motor troubles. While Cle-Air units cannot prevent normal motor wear, they do eliminate all expensive maintenance caused by unchecked shock and recoil.



FRAME DAMAGE—Damaged or broken frames are a very costly source of maintenance. You will seldom be faced with this repair item if you use Cle-Airs, because these units protect the frame from even the harshest kind of road shocks.



DRIVER FATIGUE—By taking the "drive" out of driving, Cle-Air units reduce driver fatigue, insuring safer driving records. They also protect the cargo and provide supreme riding comfort for passengers at all times.



THE CLEVELAND PNEUMATIC TOOL CO.

Automotive Division

CLEVELAND 5, OHIO

FLEET AND MEN PROFIT BY PROFIT SHARING PLAN

(CONTINUED FROM PAGE 114)

vice as of Dec. 31, 1943, whether or not continuous, shall be a participant so long as he remains a regular employee of the company. Every regular employee of the company who shall, after Dec. 31, 1943, have completed five years of continuous service shall be a participant so long as he remains a regular employee of the com-

pany, provided that if all service of a regular employee prior to Dec. 31, 1943, whether or not continuous, be added to continuous service of such regular employee subsequent to that date and the aggregate thereof is five years or more of service, such employee shall be a participant; provided further that after Dec. 31, 1943, no employee shall continue as, or become a participant for any year subsequent to the year in which he shall have attained the age of 65 years, and provided further that an

employee who at any time has left or leaves the employ of the company for military service in the armed forces of the United States or its allies shall be regarded as having been in continuous service of the company, if he returns to the employ of the company within a reasonable time after his discharge from such military service.

THE company reserves the right to grant leaves of absence to employees because of ill health, accident, service in the armed forces of the United States or its allies, service with any governmental department, bureau or agency, state or federal, for educational purposes, or for employment in any subsidiary, or for employment in any company where such employment shall be beneficial to the company's interests. The periods of time during which an employee is on leave of absence so granted by the company, for reasons above stated, or prior periods during which an employee was on leave of absence shall be treated as periods of service with the company as not interrupting what would otherwise be continuous service with the company on the part of the employee in question.

Leaves of absence granted to employees in the armed forces of the United States or its allies shall expire within 90 days from the time the employee is discharged from such military service. Except for service in the armed forces, the company is not compelled to grant leaves of absence to employees, except only as the company may think proper in view of the circumstances surrounding each case as it shall arise.

There shall be no discrimination as between employees under the terms of the agreement, and all employee participants shall be treated alike under like or similar circumstances.

Company Only Contributor

ACCORDING to the agreement, the company sets aside 10 per cent of its net profits above \$25,000 each year for the trust fund. During 1943, the company placed a larger amount, consisting of 15 per cent of its earnings, in the trust fund. This sum amounted to \$8,506.14 or an average of \$607.14 for each of its 14 participating employees. Upon the death or the retirement of an employee from

(TURN TO PAGE 120, PLEASE)

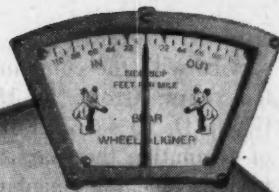
RBC ROLLER BEARINGS
LOWER MAINTENANCE COST

Precision manufacturing methods, coupled with rigid inspection and tests, insure maximum quality in RBC Bearings, resulting in long, dependable service on the road. Such methods eliminate bearing failures and secure greater load capacities. The RBC Distributor in your territory will give prompt attention to your needs.

ROLLER BEARING CO. of AMERICA
TRENTON . . . NEW JERSEY

**ROLLER BEARINGS FOR AUTOMOTIVE
AIRCRAFT AND INDUSTRIAL USE**

Dial on drive-over side is easily
visible to driver; shows exact
condition of alignment and indi-
cates amount of side-scuff per mile.



836



DY-NAMIC BALANCERS...



HEAVY DUTY DY-NAMIC BALANCERS...



SAFETY TEST EQUIPMENT...

FLEET AND MEN PROFIT BY PROFIT SHARING PLAN

(CONTINUED FROM PAGE 116)

the company, the corporate trust, may pay the participating employe or his estate a lump sum for his share of the fund or pay it in 10 annual installments.

The participants are placed in four groups by the company, namely: Group A, consisting of participants who have had five or more years of

service with the company; Group B, ten years; Group C, 15 years, and Group D, 20 years. For the purpose of computing the years of service, all periods of employment prior to Dec. 31, 1943, whether or not continuous, and all continuous service subsequent to that date shall be taken into account.

Basis of Distribution

PARTICIPANTS in Group A, as of December 31 of the year for which the contribution is made, shall

participate pro rata on the basis of their total compensation from the company with respect to such calendar year, or portion thereof, during which they are in the employ of the company.

Participants in Group B, as of December 31 of the year for which the contribution is made, shall participate pro rata on the basis of two times their total compensation from the company with respect to such calendar year, or portion thereof, during which they are in the employ of the company.

Participants in Group C, as of December 31 of the year for which the contribution is made, shall participate pro rata on the basis of three times their total compensation from the company with respect to such calendar year, or portion thereof, during which they are in the employ of the company.

Participants in Group D, as of December 31 of the year for which the contribution is made, shall participate pro rata on the basis of four times their total compensation from the company with respect to such calendar year, or portion thereof, during which they are in the employ of the company.

The division of the fund is made on the following basis: The total salaries of the participants are divided into the total amount that has been set aside for the fund for that particular year. (In the case of a man who has been with the company 10 years, his participation would be on a basis of a percentage of double his annual salary for that year.) This computation gives the company the percentage of the total salary which constitutes each individual's bonus. In other words, a man who draws \$5,000 a year will receive \$500. If an employe draws more than \$10,000 a year, his bonus is based on the sum of \$10,000 which is the top amount used as a basis for participation.

The average amount paid to a participant each year is about 10 per cent of a year's salary.

Loan Privilege Extended

THE corporate trustee also may make loans to participants in the fund in amounts not in excess of the participant's interest therein, upon such terms and conditions as the cor-

(TURN TO PAGE 123, PLEASE)



The unbeatable combination of Thorough Penetration and Perfect Arc Control, both at the same time and with a single rod, is yours with Marquette A. C. Arc Welders. No question of straight or reversed polarity. Always the same accurately regulated, matchless welding power. The complete absence of "Magnetic Blow" saves time and tempers, especially when working in close quarters.

Cast iron, malleable castings, aluminum, in fact, every size and type of metal, no matter what the job, Marquette A. C. Arc Welders will turn out strong, dependable, good looking welds faster and at less cost.

BUMPER TO BUMPER WELDING

Light fender and body work or heavy truck and trailer frames . . . all jobs are taken in stride with a Marquette Welder. Its ease of operation, simplicity and dependability is reflected in getting your vital transportation back on the road more quickly and economically.

10 MODELS, 125 to 400 AMPS.

COMPLETELY EQUIPPED

Send for free 24 page illustrated booklet

BUY THE BEST . . .
BUY MARQUETTE

MARQUETTE
REGISTERED U.S. PAT. OFFICE
WELDING
Equipment
ELECTRODES AND SUPPLIES



MARQUETTE MFG. CO., INC.
Minneapolis 14, Minnesota

FLEET AND MEN PROFIT BY PROFIT SHARING PLAN

(CONTINUED FROM PAGE 120)

porate trustee from time to time shall determine in the event of sickness or accident to the participant, or in the event of sickness, accident or death of an immediate member of the participant's family. But no such loan shall exceed the expenses incurred as a result of such sickness, accident or death. Any loan to participant shall bear interest at the rate of 4 per cent. The participant also shares in the profits of the corporate trust.

Employee Health-Accident Plan

THE employees of the company have also set up a health and accident system of their own. By means of this plan, each participating employe receives a flat sum of \$100 a month whenever he or she cannot work because of sickness or injuries. The fund to take care of these payments is provided by an assessment made on a pro rata basis upon the salaries of the other participants whenever this situation occurs.

The employe receives his compensation without any company or agent receiving any profit upon it. The same amount of money placed with a private outside company could only bring the participants about \$60 a month in case of similar accident or health benefits. A representative of the company looks after the administration of this fund which is kept separate from company funds. The average cost to employes is only 75 cents a month for this protection.

END

(Please resume your reading on p. 50)



As an example of how American trucks are being delegated to the vast rebuilding job, the White Motor Co. recently delivered several of its Model WA-22 Super Power trucks to Vacuum Concrete, Inc., for export to Russia, where they will be put to use in rebuilding the Dniepropetrovsk Dam. These units were equipped with heavy-duty vacuum pumps, just one example of special equipment which will take part in rehabilitating the devastated areas.

Urge 6 "Musts" in Tire Conservation

Facing the vast task of redeployment of troops and material, truck and bus fleets must conserve tires as never before, The Rubber Mfrs. Assn. said recently.

A shortage of 1 1/4 million truck and bus tires has already accumulated since military demands were doubled last fall.

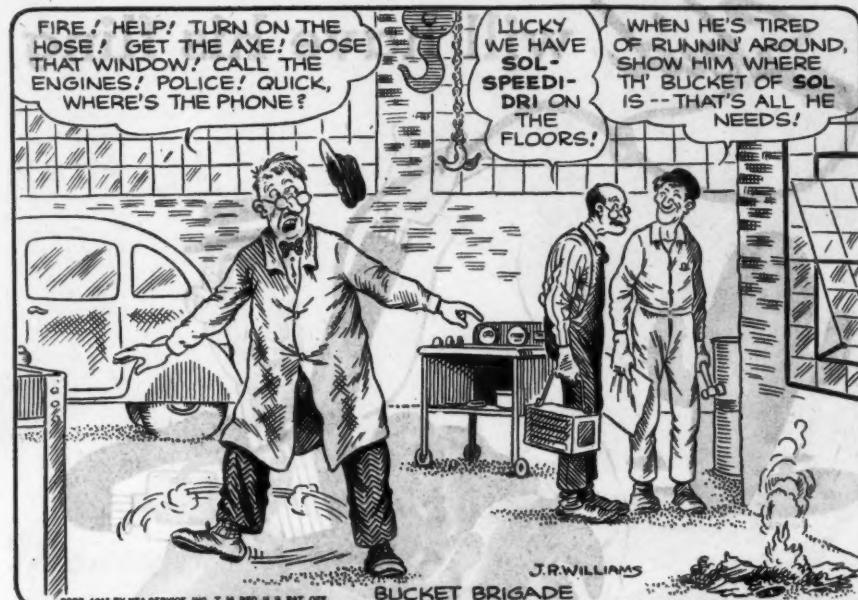
While over-the-road transport is still seriously hampered by tire shortages, however, it was noted by R.M.A. President A. L. Viles that cutbacks in military needs and rising tire production will afford some relief in the redeployment period.

Exhaustive tests throughout the rubber manufacturing industry have developed the

following "must" rules for wringing the last road mile out of war tires, the R.M.A. executive stated, in urging that every operator follow them to the letter until the war is won:

1. Thirty-five mile an hour victory speeds to combat tire-destroying heat.
2. Careful attention to breaking in new synthetic tires under light loads.
3. Rigid inspection for cuts, bruises and tread wear.
4. Scrupulous avoidance of over-loading and proper distribution of payload.
5. Continuous checking of tires to keep inflation at recommended air pressures.
6. Prompt recapping.

OUT OUR WAY



You don't need to lie awake nights, worrying over the possibilities of fast-spreading fires in your shop, due to oil, if you use SOL-SPEEDI-DRI on your floors.

SOL-SPEEDI-DRI is a high-powered oil-absorbent that takes up oil like a blotter takes up ink. It won't burn, and—even when soaked with oil—resists burning.

SOL-SPEEDI-DRI is really a double-barreled safety-weapon. It reduces the threat of fast fires. It cuts-down accidents and falls from slipping on oil-slick floors. That's why it's recommended by leading insurance companies. That's why it's used in garages, service-stations, fleet-

terminals, truck-docks, driveways, grease-pits . . . wherever oil and grease deposits are a menace.

SOL-SPEEDI-DRI is easy to use. Spread over the floor, it provides sure footing, and a fire-resistant floor-covering. Sweep it up with a broom, and floors are clean and dry. No complicated machines. No extra man-power. No dangerous solvents or caustics.

SOL-SPEEDI-DRI is stocked by all leading jobbers. Call your jobber or attach your business-card to this advertisement and mail it to us for a Free Sample.

SUPPLIERS: East—Refiners Lubricating Co., New York 1, New York.
Midwest & South—Waverly Petroleum Products Co., Philadelphia 6, Pa.
West Coast—Waverly Petroleum Products Co., Russ Bldg., San Francisco 4, Calif.



ODT-OPA-WPB NEWS

Authorizes Wholesale Deliveries of Fresh Fruits by Truck

To prevent spoilage of fresh fruits and fresh vegetables and to expedite the marketing of these products during the summer months, the Office of Defense Transportation has issued a general permit authorizing six wholesale deliveries of these commodities by motor truck each week for the months of June, July, August

and September, when the truck is employed exclusively in transporting fresh fruits or vegetables, or both.

Previously wholesale dealers of fresh fruits and fresh vegetables were restricted to five motor carrier deliveries a week. The permit provides, however, that not more than one wholesale delivery may be made from one point of origin to one point of destination during any calendar day.

"B" Ration Increased Only if Necessary

OPA's recent increase in the value of "A" gasoline ration coupons from four to six gallons and the announcement that "B" ration ceilings are being made uniform at 650 miles per month does not necessarily mean that all salesmen operating passenger cars under "B" rations will automatically receive additional allotments of gasoline permitting this mileage.

This point was specifically brought out by Chester Bowles, OPA Administrator, in the official release announcing the increases, wherein he stated: "I must make it very clear, however, that the increase in the "B" ceiling will not mean more gasoline for all "B"-users. Both "B" and "C" rations are based on the individual needs of the car owner. Many "B"-ration holders now have all the gasoline they need. They will not receive any more gasoline as a result of the increase in the "B" ration ceiling. But those who do need more gasoline will be able to get it by applying to their local War Price and Rationing Board after June 11 and showing their need for it up to a ceiling of 650 miles a month." In both cases, however, they will receive the increase of 50% in the "A" ration, as all "B" ration holders also have an "A" ration.

Ceilings Placed on Surplus Army Vehicles Parts

Specially designed parts for military vehicles that are sold for civilian use have been placed under specific price regulation, the Office of Price Administration announced recently.

The new ceilings, effective June 2, 1945, cover all sales by manufacturers, wholesalers and retailers of specially designed automotive parts for military vehicles. Typical are engine, body and chassis parts, motors, electrical equipment and wheels.

Previously, OPA said, sales of these specially designed parts to civilians were priced under the General Maximum Price Regulation, which "freezes" prices at March, 1942 levels. Because they are now being released by the Government as surplus for sale to civilians, a ready pricing method for military vehicle parts was needed. The new ceiling prices are established at levels nearest those of equivalent parts for non-military vehicles.

C. E. Cranmer Named Assistant Tank Truck Division Director

Charles E. Cranmer, chief of the ODT Liquid Transport Department, over-the-road section, has succeeded C. Austin Sutherland as assistant to the tank truck division director. Jay C. Neil, principal transport officer, will succeed Mr. Cranmer.

Mr. Cranmer came to ODT in June, 1942, after six years' service as transportation engineer with the White Motor Co. in Philadelphia and Wilkes Barre, Pa. Mr. Sutherland leaves ODT to become secretary of the newly-formed National Tank Truck Carriers, Inc., an affiliate of the American Trucking Assn.



Leave the lariat and lasso to Skid. Rope in profitable brake business by using GRAFIELD and barring bronco-bustin' stops. GRAFIELD brakes safely and gently, giving thoroughbred performance with the faithfulness of an old gray mare. Get in line—reline with GRAFIELD.

WORLD BESTOS CORP.

PATERSON • NEW JERSEY

Long After This Post-War Parade

GETS ROLLING

Maintenance of Today's Cars Will Keep You Humping

Save Time and Money With...

No matter when, or how fast new cars and trucks start rolling off the production line . . . keeping present-day cars in shape will be *big business* for a long time. Minutes saved in these busy days will be "velvet" . . . more sweet profit jobs with no increase in manpower or overhead.

Now is the time to check into the many ways Thor Tools can help you make the most of minutes and manpower—turn headache jobs into high profit jobs.

Designed particularly for automotive service . . . job-proved in the manufacture of every car on the road today . . . Thor Tools are money-making tools for every type of automotive service shop.

Get the facts today on why tooling up with Thor Tools means bigger post-war profit opportunities!

INDEPENDENT PNEUMATIC TOOL COMPANY
600 West Jackson Blvd., Chicago 6, Ill.
New York Los Angeles



Branches in Principal Cities

The complete line of Thor Multi-Matic Air Tools includes Drills, Grinders, Polishers, Sanders, Wire Brushes and Hole Saws.



REPAIR THE CARS
WITH THE TOOLS
THAT BUILT THEM



ELECTRIC DRILLS
LIGHT AND HEAVY DUTY DRILLS in a complete range of capacities from 1/8" up to 1 1/2" for continuous or intermittent service are available in the complete Thor line of portable electric tools.

ELECTRIC SANDERS & POLISHERS
THOR 7" AND 9" DISC SANDERS for all metal finishes are sturdy and easy to handle. A THOR POLISHER produces a brilliant durable finish, saves time and effort.

ELECTRIC GRINDERS
4", 5" AND 6" DIA. WHEEL Portable Grinders for fast grinding, wire brushing and buffing on all metal surfaces.

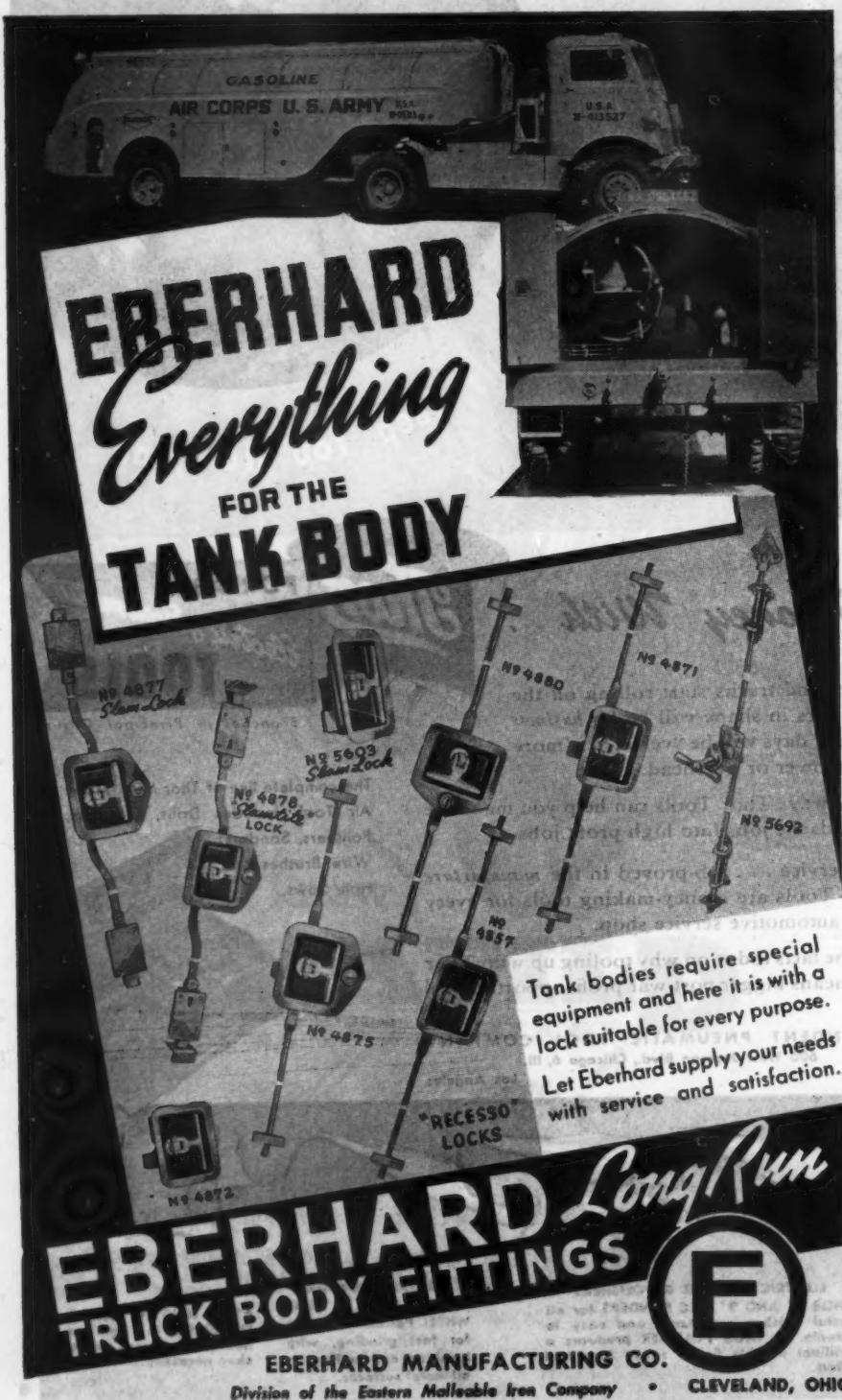
4", 7" AND 10" INCH GRINDERS in light or heavy duty types are a shop necessity.

Is There Justice in Our Present Transportation Set-Up?

THREE'S a book now on the market which is must reading for every top executive in the commercial trucking business. It will also make fascinating reading for

private truck operators who are interested in transportation developments, past, present and future.

The book is "Justice in Transportation" by Arne C. Wiprud, special



assistant to the Attorney General in the Anti-Trust Division of the Department of Justice. It is an expose of monopolistic practices and controls in the transportation field.

"Such practices and controls," says Judge Thurman Arnold in the introduction, "have produced high and discriminatory rates; they have restricted services; and they have suppressed technological improvements. All this has combined to retard the Nation's economic development."

The book involves criticism of the railroads, of banking interests, of for-hire motor carriers and of the Interstate Commerce Commission. The latter is charged with guarding more the interests of the carriers it regulates than the interests of the public. It shows, as Judge Arnold puts it, "in actual operation in America a transportation cartel fixing rates, dividing territory, and retarding the growth of the industry by private arrangements acquiesced in by government bureaus."

The author boils down what he calls the transportation crisis to two fundamental causes: The restrictive practices fostered by private groups in the industry, and the "protective" policies of government regulation, which protect existing carriers and discourage the establishment of new enterprises in transportation.

Railroad finance is exposed in a manner that makes one wonder how the railroads ever got away with it. It will probably surprise COMMERCIAL CAR JOURNAL readers to know that the land grants which railroads received as gifts from the public were capitalized by the railroads and the public is still paying a "fair return" on its own gift.

The plan of railroads and railroad investors to perpetuate railroad monopoly by "integrating" competing transportation services is scathingly denounced by Mr. Wiprud. He sees the railroad program as "avowedly one of planned scarcity for transportation. It seeks to protect the railroads' investments regardless of the economic cost to the Nation."

Nor does the author swallow the boastful advertising, the self-congratulation of railroads over their accomplishments during the war period. He points to "unjustifiable rates on vital materials of war and the resistance to reductions in rates" as being

(TURN TO PAGE 128, PLEASE)

For the engines of tomorrow...



LO-EX*
PISTONS

} Product of **ALCOA aluminum**

*Registered trademark



ALCOA ALUMINUM

BOOK REVIEW

(CONTINUED FROM PAGE 126)

in sharp contrast to the "patriotism" displayed in paid advertisements. And these petitions for rate reductions, he says, "are being made by representatives of the government to private rate-making conferences operating in violation of the Federal anti-trust laws!"

The author deals with the effect of mergers of motor carriers and with the difficulties surrounding issuance

of certificates of convenience of necessity. He contends without equivocation that the Interstate Commerce Commission is not living up to the intent of Congressional acts or to its public responsibility. Those who place a high value on the certificates granted them by the government will not take kindly to Mr. Wiprud's views on the issuance of certificates of convenience and necessity. He maintains that certificates "should be granted freely to any enterprise which is able to establish that it can

render a service superior to any available or at less cost to the public." The cost factor angle is radical. It has been ruled out by the I.C.C. as a factor in determining the adequacy of existing transportation services.

All in all, it's a very interesting, thought-provoking, ire-evoking book whether considered from the public point of view or the view of selfish interest.

Published by Ziff-Davis Publishing Co., 185 N. Wabash Ave., Chicago 1. Price \$2.50.

Veterans Can Buy Surplus Property Through SWPC

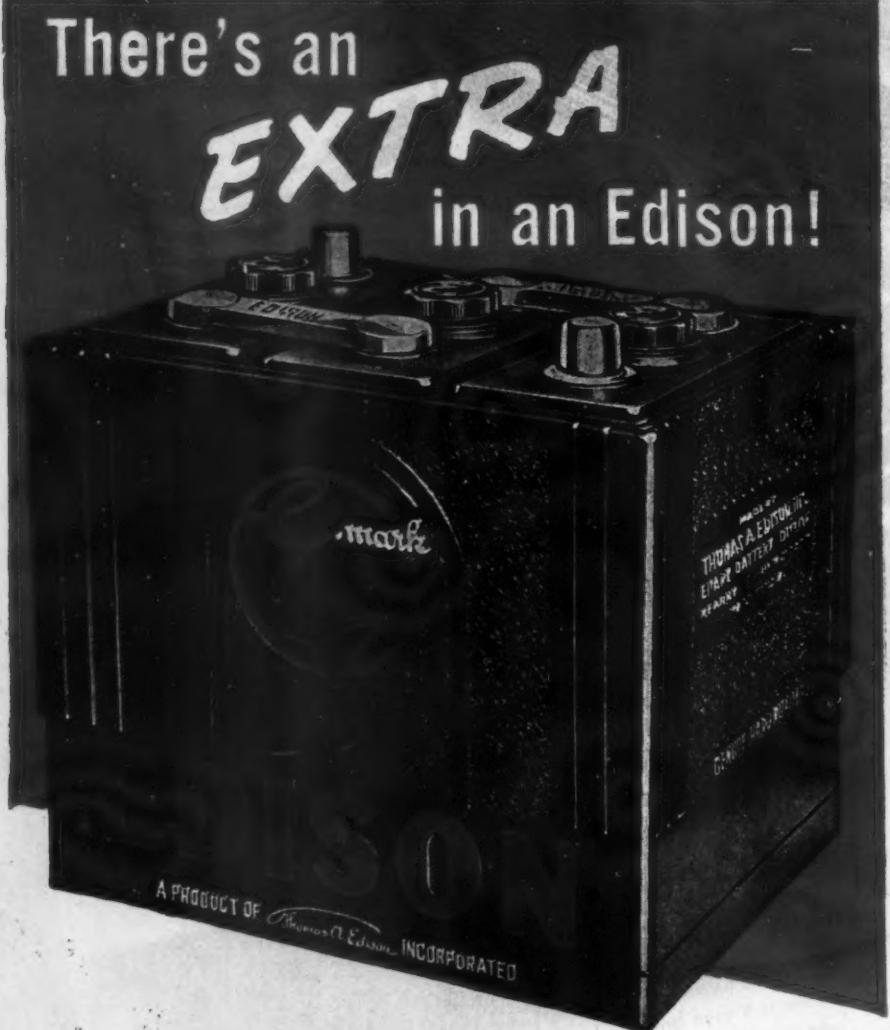
Returning veterans can purchase surplus property to set themselves up and help to maintain themselves in business without buying through regular dealer channels, according to Regulation No. 7, issued by the Surplus Property Board, and effective as of July 1.

The exercise of this right by veterans will be accomplished through the Smaller War Plants Corp., thereby affording veterans the highest priority possible. Under the terms of the act, SWPC can purchase surplus property for resale to small business organizations, and under SPB Regulation No. 2 has a Federal agency top priority to buy surplus property.

Veterans eager to obtain surplus items for any commercial, industrial, manufacturing, financial, service, medical, dental or legal enterprise, with an invested capital not exceeding \$50,000, should apply to the SWPC office nearest to the locality where the business will be established.

SWPC will act as a buying agent or clearing house on all purchases. It has the responsibility of determining whether the veteran has a good chance of success in his venture. If it decides that he has not, SWPC must explain that decision to SPB. The War Food Administration, however, will advise SWPC concerning applications for the purchase of surplus items useful in farming, forestry, grazing, fruit growing, and the like.

Heretofore, most surplus items, particularly automotive, agricultural and construction equipment, consumer goods and the like, under the terms of the Surplus Property Act have been offered for sale through dealers.



Extra Satisfaction with the performance and long life of Edison batteries under all kinds of operating conditions makes fleet owners specify "the greatest name in electricity" when they are buying replacements.

ALCOA

Thomas A. Edison Inc.

MARK DIVISION — PLANT No. 1, KEARNY, N. J.

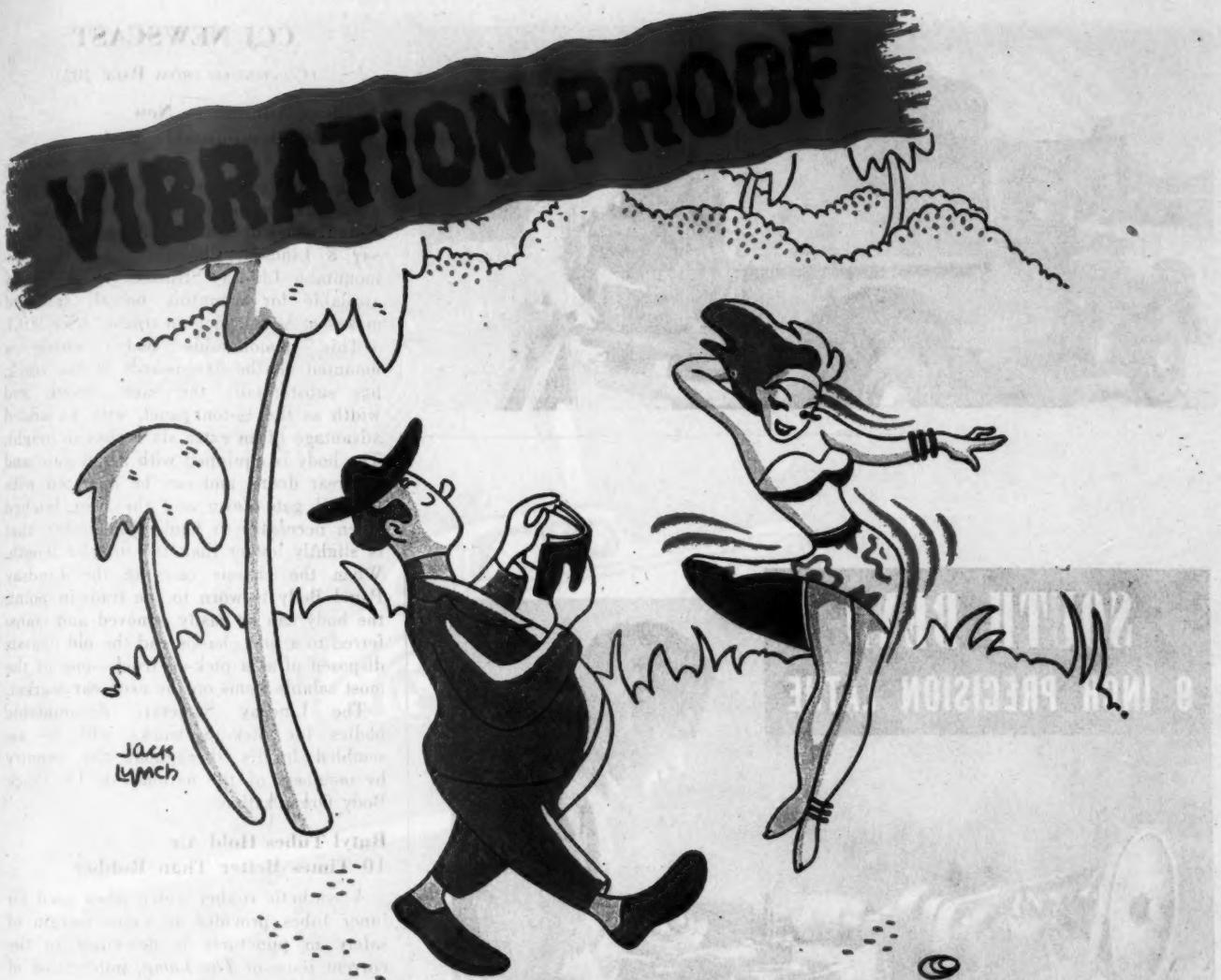
YOU CAN ALWAYS RELY ON AN EDISON



Thomas A. Edison
FOUNDER



Charles A. Cole, left, has been advanced from eastern sales manager to assistant general sales manager of Thompson Products, Cleveland. Tom A. Rowe, right, has been promoted to eastern sales manager, in charge of the company's territories east of the Mississippi



Marman Universal hose clamps are vibration-proof, too . . . they can stand the "shakes"!

Under ALL conditions of operation, they remain tight and securely hold connections.

Marman's exclusive swivel-action nut prevents slipping, makes the clamps vibration-proof without safety wiring. That's why so many clamp users are specifying Marman Universal Series 820 hose clamps for leak-proof protection of critical installations.

Marman also makes other types of clamps, including the popular Quick-Coupler, in both stainless steel and aluminum alloy, in a complete range of sizes and shapes to fit any convex surface.



Marman Universal
Series 820



High tensile stainless steel band of the Marman Universal opens to permit quick, easy installation and removal. The clamp is corrosion resistant, may be used over and over without efficiency loss. Three sizes handle hose diameters from $\frac{1}{2}$ " to $3\frac{1}{8}$ " O. D. Write today for new folder Series 820.

MARMAN
PRODUCTS CO. Inc.
940 WEST REDONDO BOULEVARD
INGLEWOOD, CALIFORNIA

CCJ NEWSCAST

(CONTINUED FROM PAGE 102)

Lindsay Announces New All-Steel Demountable Body

To meet the pressing need for new equipment among fleets whose normal operation has been dependent upon the use of $\frac{1}{2}$ -ton panel or sedan delivery units, Lindsay & Lindsay, Chicago, now has a demountable Lindsay Structure all-steel body available for mounting on all standard makes of $\frac{1}{2}$ -ton pick-up trucks. (See left.)

This demountable body, which is mounted on the flare-boards of the truck, has substantially the same length and width as the $\frac{1}{2}$ -ton panel, with an added advantage of an extra six inches in height. The body is equipped with a tail gate and lift rear doors, and can be operated with the tail gate down and the door latched when necessary to haul merchandise that is slightly longer than the interior length. When the chassis carrying the Lindsay Panel Body is worn to the trade-in point, the body can be easily removed and transferred to a new chassis and the old chassis disposed of as a pick-up truck—one of the most salable items on the used car market.

The Lindsay Structure demountable bodies for pick-up trucks will be assembled locally throughout the country by members of the nation-wide LS Truck Body Organization.

Butyl Tubes Hold Air 10 Times Better Than Rubber

A synthetic rubber which when used for inner tubes provides an extra margin of safety in punctures is described in the current issue of *The Lamp*, publication of Standard Oil Co. (N. J.).

In the first detailed description of butyl rubber, *The Lamp* reports tests on a tube that already had been run 35,000 miles. A 10-penny nail was driven through the casing and into the tube. The car was able to continue for several miles with nearly half the air remaining in the tire.

Butyl inner tubes also have been found to hold air 10 times better than those made of natural rubber and require inflation only three or four times a year.

(TURN TO PAGE 148, PLEASE)



SOUTH BEND 9 INCH PRECISION LATHE



ALL-PURPOSE VERSATILITY

Now, when replacement parts are scarce or unobtainable, service equipment that is capable of handling a wide range of work is showing its true worth. The variety of operations encountered in re-machining worn parts and making replacement parts calls for real all-purpose versatility in a lathe. Because they adequately fulfill this requirement, a South Bend Lathe will enable you to handle a greater volume of service jobs.

This all-purpose versatility is something worth considering—and waiting for if necessary. It, combined with accuracy, workmanship, and ease of operation, makes these lathes a top value. Write now for our new Catalog No. 100-D. Illustrated in full color it shows sizes and types of all South Bend Lathes. State size and type you'll need.

Lathe Builders For 38 Years

SOUTH BEND LATHE WORKS
445 EAST MADISON STREET • SOUTH BEND 22, INDIANA

HOW TO RUN A LATHE

A 128-page book on lathe operation and care. Size $5\frac{1}{2}'' \times 8''$. Send 25c in stamp for your copy.



SAVAGE DOUGLAS TIRE CO.
HYDRAULIC CO. INC.



T. F. Brown, newly appointed assistant general sales manager of Chevrolet Motor Division, General Motors Corp., in charge of parts & accessory merchandising, warehousing and distribution.

Frank M. Hawley has been appointed vice president and general manager and elected to the board of directors of the Morse Chain Co., Ithaca, N. Y., and Detroit, Mich.



The LEADER must LEAD

Raybestos Leads in Supplying the Correct Friction Material for All Your Vehicles.

PG (Proving Ground tested) Brake Lining
Sets for Passenger Cars

Wire Molded Sets for passenger cars
and light trucks

PG Truck Sets, drilled and countersunk for
light and medium trucks

Brake Blocks for buses and
heavy duty trucks

Raybestos leads in supplying friction materials for the widest
variety of automotive vehicles and every type of service.
★ The outstanding results obtained from these products
in today's stop and go driving prove Raybestos leadership.

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., BRIDGEPORT, CONN.

ARMED
FOR
LIBERTY
BUY AN EXTRA BOND

ARMED
FOR
LIBERTY
BUY AN EXTRA BOND

Raybestos

AMERICA'S BIGGEST SELLING BRAKE LINING



Brake Linings, Clutch Facings, Fan Belts, Hose — For Cars, Trucks, Buses, Tractors — On the War and Civilian Fronts

FORD TRUCKS HAVE WAR-TESTED CHANGES

(CONTINUED FROM PAGE 45)

an effective seal under extraordinary operating conditions such as have been encountered on steep grades in military service. Oil-bath air cleaners and oil filters are supplied as standard equipment. It also is of interest to find that the oil pan housing now is of split construction to facilitate clutch service operations.

Military service showed the need for better cooling of the valves. This has been taken care of by increasing the water jacket space around the valves as a permanent feature of the engine. The intake manifold is provided with special fitting for the various attachments requiring vacuum operation. Among these are the connections for vacuum power brakes and for two-speed axle shifting. The steel crankshaft pulley, formerly made in two pieces, is now in one piece.

Electrical System Improved

THE electrical system has been materially improved as the result of military experience. All of the wiring harness has a synthetic covering possessing high dielectric properties and imperviousness to the effects of weather, oil, and other underhood conditions which normally are injurious to the wiring. In addition, the ignition system is coated with the special lacquer developed during the war as a protection against water, atmospheric conditions, and fungus growth in tropical climate. New switches of sturdy construction have replaced the equipment formerly used.

Chassis Improvements

SEVERAL detail changes are found in the transmission in the interest of increased service life and simplification of maintenance operations. The most important is the application of thrust washers at the ends of transmission cluster gear. These are readily replaceable in case of wear. The old style finger latch on the gear shift lever, which tended to loosen and rattle after some time in service, has been eliminated. On the new models, Ford provides an improved reverse lockout incorporated in the gear shift cover.

Coming to the chassis, it is of interest to learn that the cab has been redesigned to provide still more strength and rigidity. In keeping with Ford practice, all vehicles are finished with synthetic enamel. Another general improvement is the use of synthetic rubber instead of the molded natural rubber formerly employed for engine mounts and the other rubber parts, thus giving longer life and freedom from deterioration in service.

The commercial car model now is provided with lube fittings at the universal joint as standard equipment. Formerly these were fitted only on the 1½-ton jobs. This model also has new wheels with 4½ in. rims to accommodate the standard 6.50 x 16 tire equipment. The steering gear mounting also has been improved on this model.

The radiators are equipped with a pressure type filler cap which reduces the loss of engine coolant.

END

(Please resume your reading on P. 46)



Teleoptic DIRECTIONAL SIGNALS



Finger-flip Control on gearshift lever.

Instrument Panel Switch with or without pilot light control.



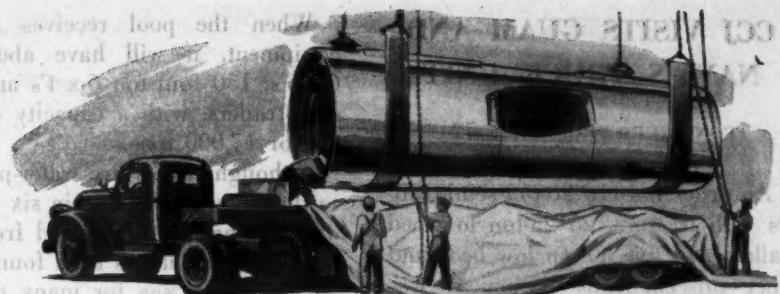
Steering Column Control Switch.

On the
Highway it's
Teleoptic

In the Air it's
Sel-air

THE TELEOPTIC CO.
1245 MOUND AVENUE RACINE, WISCONSIN

Taking Off For Tokyo



HIGHWAY TRANSPORT . . . VITAL TO VICTORY AND THE AMERICAN WAY OF LIFE



It's only about seven hours flying time to Japan for the B-29 Super Forts based on Saipan. But, even with clear roads and police escort, it's a three day truck trip between Akron and Omaha for bomb-bay sections of these big bombers. And motor transport provided the only means of moving plane sections of this size.

In 1940, America's total production of all types of planes for the Armed Forces was only 6,086. In 1944, our factories

delivered the Axis-staggering total of 96,369 . . . the largest plane production program that the world has ever seen.

Many of the parts and most of the materials making up these thousands of planes traveled by truck at some time before the finished product could "take off" for the war front. This is equally true in the case of every other item of fighting equipment. It is estimated that 75% of today's truck loads are war loads.

★ ★ ★ ★ ★

In addition to being one of the largest producers of military vehicles, GMC also manufactures many commercial trucks for essential users. If you are eligible for a new truck, your GMC dealer will gladly help you fill out an application. Remember, too, your GMC dealer is headquarters for the original Preventive Maintenance.

★ ★ ★ ★ ★

INVEST IN VICTORY . . . BUY MORE WAR BONDS

GMC TRUCK & COACH DIVISION

General Motors Corporation

Pontiac, Michigan



HOME OF COMMERCIAL GMC TRUCKS AND GM COACHES . . . VOLUME PRODUCER OF GMC ARMY TRUCKS AND AMPHIBIAN "DUCKS"

CCJ VISITS GUAM AND NAVY'S TRUCK UNIT

(CONTINUED FROM PAGE 72)

An order for 110 20-ton semi-trailers with tractors, 25 25-ton low bed trailers and five 50-ton low beds and other miscellaneous equipment was placed several months ago. The need for long-bed heavy load-carrying equipment becomes more pronounced day by day.

When the pool receives all its equipment, it will have about 50 6 x 6's, 150 four-ton 6 x 4's and 100 semi-trailers, with a capacity of 16,000 or 17,000 tons.

Although trucks are water-proofed so that they can be run in six feet of water before being shipped from the United States, it has been found that after being at sea for many months they require repairs before going into service. The main problems are raised by rust, corrosion and battery failure.

Some Complaints on Equipment

IN general, the men are pleased with their equipment but specific complaints were not lacking. For example, it has been found that fenders, running boards and hardware are too lightly secured and that side racks and tail gates are too light. In addition, there is a feeling that there is too much battle gear with the trucks; during the assault phase each truck received was equipped with a winch. Winches are part of the necessary equipment during the early stages of an operation, but these Seabees say that one on every third or fourth truck would be sufficient. Tops of cabs have not been heavy enough to resist the abuse given them. Horns do not work because of corrosion of the connections. Some units are not complete; load-securing equipment is often missing from trailers.

Practically every man queried on the subject agreed that equipment should be standardized in each area. Maintenance problems on a great variety of brake equipment was the leading example of the difficulties raised by the lack of standardization.

During the early stages of the operation, trucks were overloaded to an extent never thought possible by the manufacturers. At the present time, however, strict loading regulations are enforced. The maximum load weight for 2 1/2-ton cargo trucks is 5 tons and for trucks without front-wheel drive, 4 tons. Cargo must be properly distributed on the trucks and, when necessary, braced or properly secured to prevent load shifting.

When cargo extends beyond the truck body, the tail gate must be fastened in horizontal position. A cross-piece member must be placed in the truck body to keep the load off the tail gate. High narrow boxes or crates that are not stable must be laid flat, blocked vertically or framed with each other to prevent leaning on side racks.

On 2 1/2-ton cargo trucks 16 ft. is the maximum length of objects that may be hauled. Smaller pieces are to be loaded forward in the trucks on top of extended objects to insure proper load balance. In these cases the total weight load must be reduced to 4 tons.

Drivers are not permitted to pull trailers with 2 1/2-ton cargo trucks, while fuel drums may be hauled only

(TURN TO PAGE 136, PLEASE)

prevent time-out for repairs



Manufacturers and maintenance men know that Sludge, Gum and Acid are major causes of engine deterioration. For fifteen years an ever increasing number have been using LOOSITE and SILOO to dissolve these petroleum residues and prevent their formation.

The action of LOOSITE and SILOO is simple, safe and sure. First LOOSITE poured in the crankcase cleans out

the motor, then SILOO added with fresh oil keeps it clean. Now that motors must be kept in full-time service it's more important than ever that you prevent Sludge, Gum and Acid from sending yours to the repair shop.

See that they get the LOOSITE and SILOO treatment. Full information upon request.

If you heat with oil—write for information on SILOO FUEL OIL TANK SOLVENT.

PETROLEUM SOLVENTS CORPORATION

331 Madison Avenue, New York 17, N. Y.



X-112 Body and T-440
Hoist, Scoop end or auto-
matic downfold tailgate.



West Coast Special, W-12
Body and FBC Cam and
Roller Hoist.



12,000-Series Crane,
10-ton capacity.



One-way Side Dump, Dual
Hydraulic Hoist. Auto-
matic downfold side.



4-Wheel Cable Scraper,
11, 15, 20, 25 cu. yd.
capacities.

**STILL
GOING
STRONG**

... Because They're Designed
and Built by GAR WOOD

Prolonged production of wartime necessities has placed a strenuous test on civilian equipment. Replacements are hard to get nowadays . . . impossible in some cases. It takes superb equipment, properly serviced, to successfully bridge the gap between prewar and postwar supplies. Gar Wood equipment is well

known for its ability to deliver rugged, dependable day-in, day-out performance. That reputation was not easily won. Present-day owners of Gar Wood equipment know that it was designed and built to last a long time . . . to get work done quickly and efficiently without babying and constant attention.

"BUY WAR BONDS—AND KEEP THEM!"

GAR WOOD INDUSTRIES, INC.

DETROIT 11, MICH.

WORLD'S LARGEST MANUFACTURER OF TRUCK AND TRAILER EQUIPMENT



HOISTS AND BODIES • WINCHES AND CRANES • TANKS • ROAD MACHINERY • HEATING EQUIPMENT • MOTOR BOATS

CCJ VISITS GUAM AND NAVY'S TRUCK UNIT

(CONTINUED FROM PAGE 134)

on this type of truck. Only certified trucks are to be used for hauling explosives and bombs; in the Motor Pool these are 4-ton 6 x 4's. The maximum load weight for ammunition is four tons. While the Motor Pool has hauled all types of cargo required by a joint military operation, in mid-May the officers were attempt-

ing to determine loading and unloading procedures for the first load of livestock then on its way to re-stock Guam. All of the loading requirements and all other measures to insure the safety of both the driver and cargo are the direct responsibility of Lt. Walter D. Kibler, Operations Officer.

Shop Equipment Scarce

DURING the assault stage of the operation maintenance and repair facilities were as scarce as roll-

ing stock. A four-stall temporary shop, Fig. 6, constructed of salvaged Japanese lumber, corrugated iron and canvas truck covers, along with two makeshift grease racks, comprised the entire maintenance set-up of this operation, and was still in use during my visit.

Salvaged Jap equipment, including a crane, lathe, gas truck, and three battery chargers, were put to use. The battery chargers are still in operation. This equipment along with one grinder, valve refinisher, one arc welder and a portable machine shop was all that was available to the unit until last December.

Prior to moving into its new location, the Pool had also acquired a total of seven gas welding outfits, since welding makes up about 20 per cent of the shop work, two air compressors and other small, miscellaneous equipment.

The shop layout at the old location consisted of a quick service shop unit overhaul and replacement, double grease racks, handling an average of 77 jobs daily, makeshift tire and paint shops, battery repair and welding. In the new location, Figs. 2 and 3, there will be, in addition to the above, two large shops, a tool room, machine shop, body shop, paint shop, tire repair and battery rebuilding. The portable machine shop will be dismantled and set up at the new shops. Each of the large shops will be 375 ft. long and together will house 54 stalls, each 14 ft. wide.



Kleer-Flo
MECHANICAL
PARTS CLEANER
FOR ECONOMICAL, SAFER
AND EASIER CLEANING
COLD WASHING PROCESS
ELECTRICALLY OPERATED
CONTINUOUS FILTERING
PROLONGS EFFICIENCY
OF CLEANING COMPOUND
WORKING SPACE 12" DEEP

Handles large or small parts. No splashing. No loss of small parts. 20-gal. tank. Low cost multi-purpose unit, always ready, no heating. Saves time, labor and cleaning compound. Removes mechanics' objections to cleaning dirty parts.

Available ACCESSORIES

10-gallon DUNKING TANK; self-draining DRYING SHELF for basket or parts; BASKETS that fit into dunking tank. Strong, firm CLEANING BRUSHES.

Kleer-Flo CLEANING COMPOUND

Especially prepared for use in KLEER-FLO CLEANER. Lifts grease and grime deposits quickly, safely. Will not attack metal or paint. Needs no heat, no water. Fast drying.

WRITE TODAY FOR FULL INFORMATION

PRACTICAL PRODUCTS CO. • 2632 Nicollet Avenue, Minneapolis 8, Minn.
Manufacturers of Mechanical Parts Cleaners, Cleaning Compounds, Kool-Ant Pumps

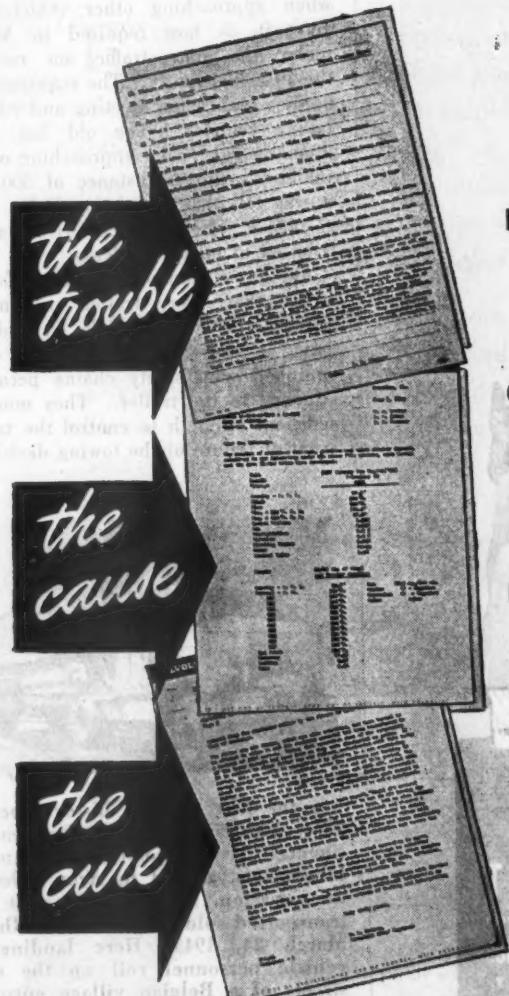
AND GRANITE • TANKS • ROAD MACHINERY • HEATING EQUIPMENT • MOTOR BOATS (TURN TO PAGE 138, PLEASE)

VALVOLINE FLEET LABORATORY SERVICE

*Gets you out of trouble—
KEEPS you out of trouble!*



THIS IS HOW IT WORKS:



Take case No. 284-7, the bus fleet of a California city. A heavy tarry substance was noted coming from air vents in an oil breather cap . . . the same deposit was found inside the oil-fill pipes and valve chambers of several motors. The baffled maintenance chief called in a Valvoline man.

REPORT AND OIL SAMPLES FROM OUR FIELD MAN

He went over the problem with the fleet's mechanics, sent us a complete report, together with samples of the tarry deposit, drained oil, the gasoline in use, and a stopped-up screen from an oil breather cap.

COMPLETE ANALYSIS FROM LABORATORY TESTS

Exhaustive laboratory tests were made, their results correlated with other facts; loads carried, daily mileage, type of route, idling time, oil filters used, thermostat settings, etc. As clearly as a set of fresh footprints, this lab report led Valvoline experts to the trouble.

RECOMMENDATIONS FROM OUR ENGINEERS

Our engineer's letter explained the lab report, diagnosed the trouble, prescribed corrective measures, recommended certain changes in operation. This fleet averted serious damage and expense, increased the efficiency and economy of its units.

This service is available to you without charge. Don't rely on "home remedies"—send for the doctor—the Valvoline man!

VALVOLINE

MOTOR OIL—THE ORIGINAL PENNSYLVANIA OIL

VALVOLINE OIL COMPANY, 481 MAIN STREET, DEPT. 41-G, CINCINNATI 2, OHIO

JULY, 1945 Use postage-paid card inserted in this issue at page 59, for free information on advertised products

CCJ VISITS GUAM AND NAVY'S TRUCK UNIT

(CONTINUED FROM PAGE 136)

cumbered to rust very quickly, and electrical equipment, affected by the long ocean haul, provided Lt. Miller's men with countless headaches.

However, the greatest trouble was with tire failures. The Pool experienced as many as 316 flats in one day, caused by the poor roads and constant overloading. With very lim-

ited replacements the meager repair facilities were taxed to the utmost. As roads improved, so did the supply situation, and flats are now down to about 90 a day. Most of the men are quite satisfied with the synthetic tires and tubes.

Cracked Heads High on List

CRACKED heads are still high on the maintenance list but, in general, Lt. Miller says that mechanical failures are normal for the operation. All trucks are lubricated weekly.

Transfer cases, differentials and transmissions are also checked weekly. Minor parts are checked on the grease racks. There is no set over-haul, and the operation is strictly unit replacement, due to the lack of parts. During an average 24-hr. period, about 120 repair orders are received. Lt. Yackey also endeavors to have the trucks washed once a week, but this is difficult because of the continuous operation.

Perhaps the greatest tribute to the successful operation of this truck unit is its accident record. The medical officers report that accidents are amazingly low. During the first nine months of operation the Motor Pool experienced only one serious accident, with two fatalities, and this was before improved roads appeared. Accidents are practically non-existent in the shops.

END

(Please resume your reading on P. 74)

Minnesota Traffic Act Amended

The dimming of headlights on vehicles when approaching other vehicles within 1000 ft. is now required in Minnesota under the state traffic act revised by the 1945 legislature. The requirement now applies both when meeting and when overtaking vehicles. The old law required dimming only when approaching oncoming vehicles within a distance of 500 ft., but it was felt that permitting lights as close as 500 ft. often blinded drivers and contributed to many accidents.

Another amendment to the traffic act requires that every trailer or semi-trailer towed by a motor vehicle, in addition to using an approved towing device, shall be equipped with safety chains permanently attached to the trailer. They must be of sufficient strength to control the trailer in event of failure of the towing device.

It's All "Uphill"

Mechanics and drivers will tell you it's all uphill driving these days—that vital transportation puts stress and strain on motors that demands the most fuel pumps can give—and more.

KEM FUEL PUMPS and FUEL PUMP PARTS are made for that kind of work. Where equipment is faulty, KEM steps in with Fuel Pumps and Parts constructed for just that kind of heavy duty and long service. Casting, machining, insulation and oversizes are all there with extra margins of strength that make them the perfect replacement parts for your fleet. Our Registered Guarantee is your warrant for satisfactory service.

KEM FUEL AND VACUUM PUMPS, RE-BUILT PUMPS, FIX-A-PUMP PAKS are all backed by the KEM Registered Guarantee.

Write for KEM CATALOG and Distributor

KEM
KOMET
prefitted

KEM MANUFACTURING CO., INC.
601 West 26th Street, New York 1, N.Y.

Replace with KEM



For the first time in history the U. S. Navy participates in a European continental river crossing, as American bluejackets, garbed in Army Khaki for the occasion, man landing craft which transported soldiers across the Rhine on March 24, 1945. Here landing craft vehicle personnel roll up the narrow streets of a Belgian village enroute to the Rhine, hauled by Autocar U-3144 tractors which were shipped from the Autocar factory in Ardmore, Pa.

THERE MUST BE NO COMPROMISE WITH *Safety*

TODAY, America is depending on motor transportation as never before. Every load of war materials and equipment carried by big trailer outfits must get through — and on time! Delays due to accidents caused by ineffective brakes must be prevented — there should be no compromise with safety!

It is significant that 80% of all power-brake equipped trailing vehicles purchased by the government during this war — have Warner Electric Brakes. So take a tip from Uncle Sam — protect your drivers, your cargoes, and your trailer outfits — give them the EXTRA SAFETY of Controlled Braking Power — exclusive feature of Warner "Vari-Load" ELECTRIC Brakes. No matter what the weather, the driver can pre-set any and all brakes to fit BOTH load conditions and road conditions — thus keeping his train straightened out and under full control even

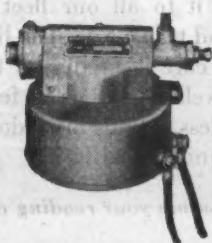
when the going is slippery, and avoiding costly tie-ups due to damaged equipment.

On all future trailer purchases, specify Warner "Vari-Load" Electric Brakes — world-famous for safety, simplicity, and dependable, efficient, trouble-free performance.

**WARNER ELECTRIC
BRAKE MFG. CO.
Beloit, Wisconsin**



WARNER
ELECTRIC BRAKES



NOW — Present Owners of Trailers with Warner Electric Brakes Can Have This New WARNER CONTROLLER

The new Warner Controller — simple and compact — synchronizes the hydraulic brakes on tractor with the Electric Brakes on trailer. The tractor's regular foot pedal operates both braking systems. This development creates smooth foot-touch tractor-trailer breaking under all conditions — eases driving strain — assures greater safety. Controller is easily and quickly fitted into hydraulic brake line. See your Warner dealer about changing over your present equipment.

**FOOT PEDAL PRESSURE
CONTROLS BRAKES ON
BOTH TRACTOR AND
TRAILER**



A POWERFUL 5-FORM PM PROGRAM

(CONTINUED FROM PAGE 44)

alignment, air compress or valve adjustment and similar tightening, adjusting and checking which must be done periodically. This service is performed every 6000 miles, in addition to services 1, 2 and 3.

Service 5, occurring every 15,000 miles, includes, besides services 1, 2 and 3, draining and filling No. 1

transmission, inspecting gears, and checking for play in both counter-shaft and main shaft.

Service 6, 7, 8 and 9 are also done every 15,000 miles. No. 6 includes draining and refilling No. 2 transmission, inspecting gears, and checking for play in main shaft and counter shaft.

Service No. 7 takes care of No. 1 differential draining and refilling, and checking for play in worm wheel and shaft. Service No. 8 includes draining and changing oil in No. 2 differ-

ential and checking worm wheel and shaft. No. 9 service includes the repacking No. 1 axle on truck and the same on the trailer.

Service No. 10, done every 30,000 miles, besides all of the previous services, includes the repacking of No. 2 axles on both trailer and truck. No. 11 service, also done every 30,000 miles takes care of the repacking of No. 3 axle on both truck and trailer.

Each of these services, as it is done by the mechanics, is initialed by him, and then the shop foreman initials the line "Complete and recorded on service card" as soon as he has recorded it on Form M-2. Both forms are then filed in the shop office.

M-4 and M-5, Reference Forms

FORM M-4, Mechanical Record of Equipment, is the key for referring to the file of M-1's and M-2's to find out what was done, and by whom, on any part of the equipment. It records the date and mileage reading on the piece of equipment at the time the work was done on the engine, air compressor, fuel pump, clutch, No. 1 transmission, No. 2 transmission, No. 1 differential, No. 2 differential, brake valves, or brake lining. This form contains the bare information necessary for referring to the more detailed forms, M-1 and M-2.

Form M-5, Mechanical Data Record of Equipment, is kept on each piece of equipment and is merely a listing of the makes, sizes, models, serial numbers and so on of every vital part in the equipment. It's use enables us to have at our disposal this necessary information at the main shop when new parts are needed immediately.

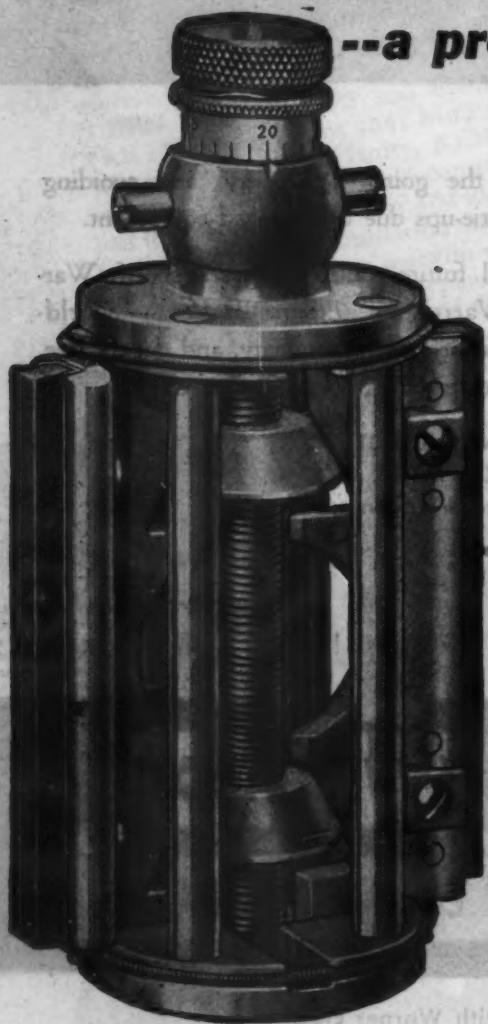
This PM program, although adopted for use with a specialized fleet of carriers of calcined magnesite, will be readily adaptable to other types of carriers. We found it to be completely adequate for keeping the carriers on the road under wartime conditions at a time when many vehicles are being junked for failures due to gross neglect. We have been so pleased with the results of the program that we are now adapting it to all our fleet of large dumps and transports. The little extra time and care it entails for the maintenance well repays us in fewer road failures, less serious breakdowns, and longer equipment life.

END

(Please resume your reading on P. 45)

AMMCO SELF-LUBRICATING CYLINDER GRINDER

--a precision hone



• EASY to ADJUST . . . EASY to OPERATE . . . ACCURATE . . . One set of standard stones and one set of burnishing stones provides maximum cutting speed, and produces a mirror finish.

Model SL400—range 2 3/16" to 4" . . . Model SL500—range 2 11/16" to 4 1/8". Extension carriers available to increase range to 5 1/2".

See Ammco Jobber for details.

AMMCO

2100 COMMONWEALTH AVE.
NORTH CHICAGO, ILLINOIS

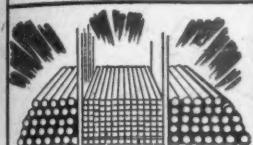
How Up-To-Date are you on ALUMINUM?



Sheet and Plate. Standard gauges, sizes and alloys. Many special items.



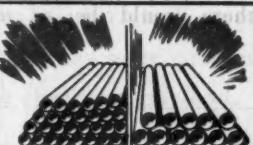
Wire. Cross-sections less than $\frac{1}{8}$ inches. Also finished rivets.



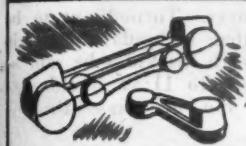
Rod and Bar. Sizes from $\frac{1}{8}$ inches to 8 inches for forging and machining.



Shapes. Rolled and extruded sections to fulfill individual needs.



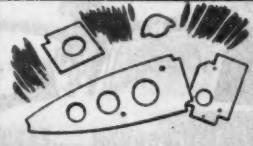
Tubing. Seamless. Closely controlled as to quality and dimensions.



Forgings. Production capacity—up to 2,000,000 units per month.



Castings. Permanent mold and sand. Produced in one of industry's most modern plants.



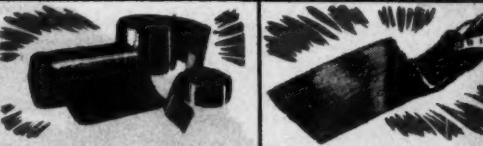
Parts. Fabrication at aluminum source saves manpower, plant space, scrap and transportation.

REYNOLDS:
Answer to Industry's No. 1 Question

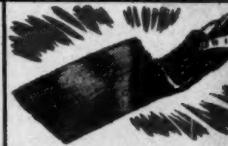
Today . . . With R301 and the other new high-strength alloys, aluminum combines light weight, corrosion-resistance and great strength . . . extends farther and farther the rapidly widening field of its usefulness.

Today . . . To known prewar facilities Reynolds adds the great new independent source of supply and service . . . mines . . . mills . . . manufacturing plants in the great industrial areas.

Never again need America face the danger of aluminum scarcity and high prices.



Foil. For years the largest producer of light gauge aluminum for packaging, technical and insulation purposes.



Powders and Pastes. For aluminum coatings.

FREE

Many of the bulletins and catalogs listed belong in your files. Please use coupon below in ordering.

1. Wire, Rod, Bar (Bulletin 31-A). Specifications, ordering data, etc. 12 pp.
2. Tubing (Bulletin 17-A). Specifications, ordering data, etc. 8 pp.
3. Processing. "Reynolds Aluminum, Its New Importance in Processing Operations." (Cat. 102.) 8 pp.
4. Packaging. Bulletin on protective metal packaging. 4 pp.
5. Insulation. Bulletin on types and applications of reflective metal insulation.
6. Forging Stock (Bulletin 23-A). Specifications, ordering data. 8 pp.
7. Coatings. Forms, applications, evaluation, etc. Powders and Pastes. (Bulletin 21-A.) 20 pp.
8. Castings. Bulletin on Reynolds facilities for sand and permanent mold. (On press.)
9. Aluminum Production. Story and flow diagram of world's only complete aluminum plant. 8 pp.
10. Alloys—R317. A new free-machining strong aluminum alloy. (Bulletin 55-A.) 4 pp.
11. "Aladdin of Aluminum." Reader's Digest reprint. Background story of Reynolds growth.
12. Weight Calculator. Slide rule for determining weights of all commonly used metals.
13. Sheet (Bulletin 22-A). Specifications, ordering data, etc. 8 pp.
14. Product Design. "Reynolds Aluminum, Its Important Role in Tomorrow's Products." (Catalog 100.) 16 pp.
15. Motion Picture. "A Recital of Faith." Story of aluminum production. 16mm. and 35mm.
16. Metal Industries. Cond. Catalog of Reynolds products and services for Metal-Working Industries. 8 pp.
17. Extruded Shapes (Bulletin 35-A). Specifications, ordering data, etc. 8 pp.
18. Construction. "Reynolds Aluminum, Its Important Role in Modern Engineering." (Catalog 103.) 12 pp.
19. Architecture. "Reynolds Aluminum, Its Important Role in Architecture." (Catalog 104.) 12 pp.
20. "Aluminum Progress," Bi-monthly, non-technical news bulletin.
21. Alloys—R303. New aluminum alloy of highest strength, excellent corrosion-resistance. (Bulletin 54-A.) 8 pp.
22. Alloys—R301. New high-strength aluminum alloy. (Bulletin 50-A.) 8 pp.

REYNOLDS:

Source of valuable technical knowledge

To the sum total of metallurgical knowledge Reynolds has added much vital data . . . gained from pioneering new fields of aluminum production.

From this background accomplishment, Reynolds is prepared to co-operate directly with manufacturers who have major problems to solve.

Much technical material is available upon request. Check the catalogs and bulletins desired. Write in detail concerning any special question. Reynolds Metals Company, Aluminum Division, 2527 S. Third Street, Louisville 1, Kentucky.

Keep your dollars fighting . . . BUY MORE WAR BONDS

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REYNOLDS

ALUMINUM

THE REYNOLDS COMPANY
Source of
Sheet • Rod • Bar • Casting

HEARD BY THE GREASEMAN

(CONTINUED FROM PAGE 41)

SYMPATHETIC MECHANIC SEEING THE ONE WITH BANDAGED FINGER: "WHAT DID YOU DO, HIT YOUR FINGER ON THE DINNER TABLE?"

Two mechanics were working outside on a tractor a few days ago when a plump dog came along with a big beef bone in his mouth. "Grab it," said one, "there's a good stew in that." "Yes, said

the other "and if it was dark I'd take the dog too."

"I was hot as a firecracker by that time," told one Driver who had three blowouts on one trip, and added "that week I had more breakdown hours than working hours."

Incidents on a bad wrecking job—a trailer half on its side, along a bitterly cold lake shore, early Monday morning:

Mechanic: "Mother told me there would be days like this, but I didn't know there would be so many of them."



ROWLAND SPRINGS STAND UP in Toughest Service

Call nearest Rowland Distributor. He's supplied by these branches:

ATLANTA 3, Ga., William and Harvey Rowland, Inc., 449 Marietta St., N. W.

BIRMINGHAM 3, Ala., Birmingham Spring Service, Inc., 2017 Avenue B, South.

CHICAGO 16, Ill., William and Harvey Rowland, Inc., 2732 Indiana Avenue

JACKSONVILLE 4, Fla., Jacksonville Spring & Alignment Co., 137 Jefferson Street

PHILADELPHIA 30, Pa., William and Harvey Rowland, Inc., 1414 Fairmount Ave.

PITTSBURGH 13, Pa., Point Spring Co., 419 Melwood St.

• The enviable record of Rowland Springs on trucks, half tracks and prime movers show the ability of these springs to withstand abuse far beyond ordinary civilian requirements. Of equal importance to you, however, is the specialized spring service rendered by nearly a thousand Rowland Spring Distributors. They catch trouble before it happens, help cut down road delays and keep spring costs at a minimum. Call on your local Rowland Distributor for service, as well as, SPRINGS, mufflers, wheel suspension parts and universal joints.



WM. and HARVEY ROWLAND INC.
FRANKFORD, PHILADELPHIA 24, PENNA.

SPRINGS • MUFFLERS • WHEEL SUSPENSION PARTS • UNIVERSAL JOINTS

150th ANNIVERSARY OF AMERICA'S OLDEST LEAF SPRING MANUFACTURER

The Driver who put it in the ditch wore a cap on the side of his head with a large button reading "I need loving." So they put him to work helping transfer 25,000 lb. of freight by hand. All he could report on the cause of the accident was that he "saw lights coming down the road at him."

Mechanic casualties before job was finished; 1 broken knee cap. 1 busted finger. Breakdown time 10 hours.



Clancy the mechanic was groggy that Monday morning and the Boss thought it was a hangover. Turned out to be nothing more than a Sunday night trip to the movies with his kids—he said he was there from 7 to 11:39, double feature Westerns and he was sitting up front.

• • *

One of the Dockmen on leave from the Navy came back to help out. His bell bottom trousers fairly flapped and flew, he was so happy. Later that day another boy in Marine uniform was pushing a handtruck. "Looks like Army and Navy Day," someone said to Rooney the Checker. "Yes, and the kindergarten is here too," he said, pointing to a 16-year-old high schooler.

• • *



The Old Timer and Pete the Helper were working on the over-the-engine hook up accelerator to carburetor. Pete stared at it blankly. "Looks complicated," he said. "Oh that's simple" said the Old Timer. "You mean the fellow that made it is simple," came back the puzzled Pete.

• • *

PETE THE HELPER LOOKING AT HIS FIRST FUEL PUMP ASSEMBLY KIT: "THIS IS A JOB FOR A QUIZZ KID!"

• • *

"EVERY TIME THEY CLEAN UP THE YARD," Muttered Gabriel the Yardman, looking for trailer blocking "THEY TAKE THE BLOCKS AND LEAVE THE PAPER AND RUBBISH."

• • *

Cigarettes. There's the Driver who refused to deadhead back with a friend of his because he had two full packs of Camels and his friend was out of them.

END

(Please resume your reading on P. 42)



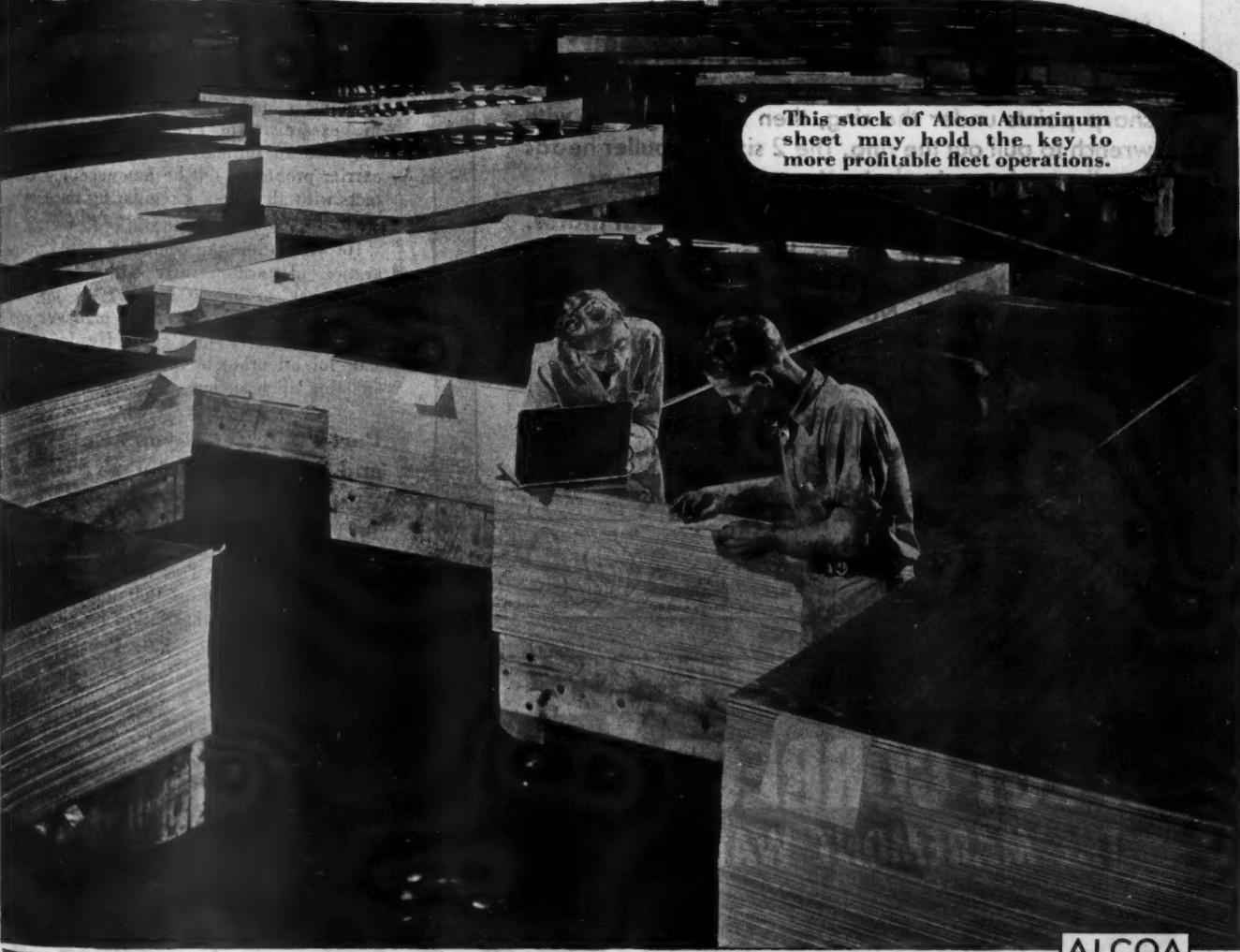
Of interest to Cost-Conscious (and who isn't?) Fleet Operators

Deadweight costs just as much to carry around as payload. But there's this difference. Deadweight is on your payroll, whereas your customers write the check for payload.

Strong, lightweight Alcoa Aluminum lets you reduce deadweight. Payloads can then be increased, boosting your income while operating costs are cut.

Postwar designs of many manufacturers, prepared with the help of Alcoa engineers, call for increased use of Alcoa Aluminum. It will pay you to discuss aluminum construction with the manufacturer who supplies your equipment.

ALUMINUM COMPANY OF AMERICA,
2139 Gulf Bldg., Pittsburgh 19,
Pennsylvania.



This stock of Alcoa Aluminum sheet may hold the key to more profitable fleet operations.

ALCOA

FIRST IN
ALUMINUM



CCJ NEWSCAST

(CONTINUED FROM PAGE 130)

Resigns as Safety Council Chairman

W. Robert Smith of Scott Bros., Inc., Philadelphia, Pa., has resigned as general chairman of the Executive Committee of the Commercial Vehicle Section, National Safety Council. H. O. Tilner, United Pacific Insurance Co., Tacoma, Wash., has been elected to serve out the unexpired term which runs to October of this year.

D. J. Ansboro, Jr., Joins CCJ Washington News Bureau

David J. Ansboro, Jr., has succeeded J. D. Browne on COMMERCIAL CAR JOURNAL'S Washington news staff. Don Browne resigned to take a position with the Automotive Council for War Production.

Everett A. Harding Named Assistant Manager, PMTA

Everett A. Harding has been named assistant manager of the Pennsylvania Motor Truck Assn., Inc., and director of the Association's newly established Traffic Department.

This appointment brings new individuals to PMTA members at no extra cost. Mr. Harding is one of the most qualified trucking executives in Pennsylvania. He not only has an intimate knowledge of motor carrier problems, but he has excellent contacts with all agencies regulating the trucking industry.

He will handle the compilation and preparation of tariffs (inter and intra-state) and other problems peculiar to for-hire carriers, and free the general manager and the rest of the PMTA State Headquarters staff for attention to the general problems affecting all branches of the industry.

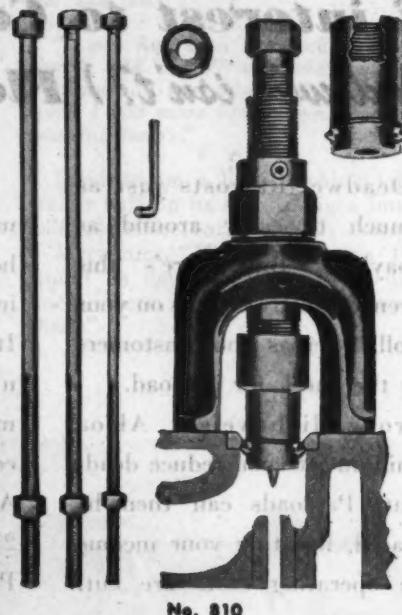
Part-Time Employment of Army and Navy Personnel Prohibited

Part-time employment of personnel of the armed forces while on leave or furlough has been limited by the Army and Navy Departments. The War Department's Circular No. 105 states that under no circumstances may authorization be given for

(TURN TO PAGE 150; PLEASE)

**PULL VALVE
SEAT RINGS and
VALVE GUIDES
EASILY
QUICKLY
SAFELY**
with the NEW

BISHMAN
VALVE SEAT RING
and VALVE GUIDE
PULLER



No more risky, damaging, time-wasting prying or hammering. Just set the BISHMAN PULLER on the motor block as shown above, turn screw to set 3 hard sharp points under the ring, then turn large nut with wrench to pull out the ring. The 2 sizes of puller heads handle most car, truck, tractor and bus engines.

Pull Valve Stem Guides without taking out motor. Use same fixture; it has a hollow center through which to slide pull rods (3 sizes and retainer ring furnished, as shown). No. 810 Puller Set packed complete in steel box with two extra sets of points—a great time-saver and man-saver.

ASK YOUR JOBBER or WRITE US

BISHMAN MFG. CO., 1101 SOUTH 2ND ST., MINNEAPOLIS 15, MINN.

BISHMAN



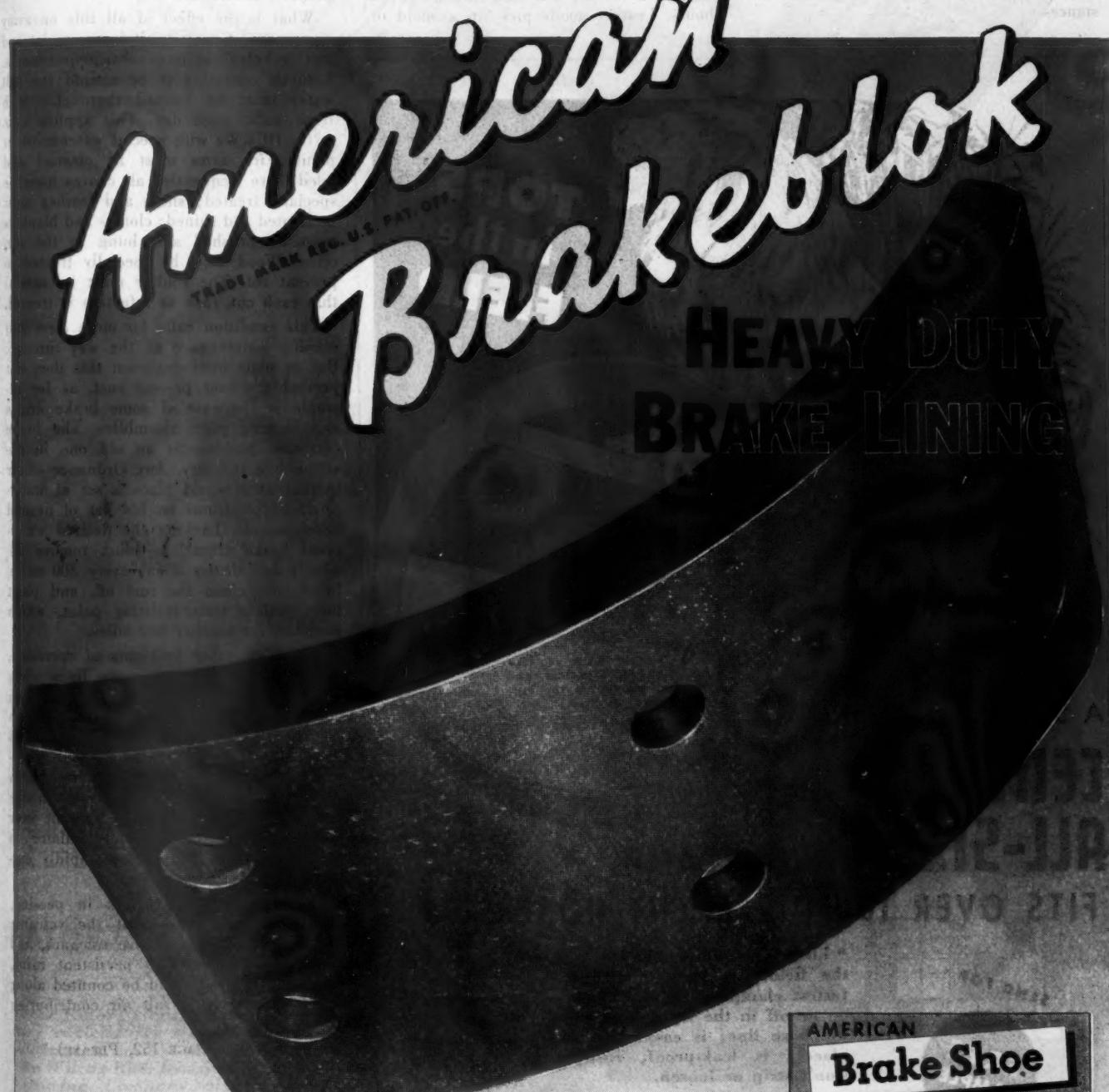
**INSPECT-CORRECT
THE MAREMONT WAY**



MAREMONT AUTOMOTIVE PRODUCTS, INC. - CHICAGO 8, ILLINOIS

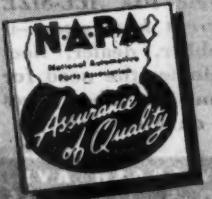


Time out for repairs can be reduced by using



Stopper says -

"Maintenance men who have brake lining problems get helpful information by asking for American Brakeblok's Free Advisory Service."



Master stocks in 38
NAPA warehouses. Job-
bers everywhere maintain
supplies.

AMERICAN
Brake Shoe
COMPANY

American Brakeblok

Division

DETROIT 9, MICHIGAN

CCJ NEWSCAST

(CONTINUED FROM PAGE 148)

employment which renders direct personnel service to the general public. It specifically prohibits employment as passenger bus or street car operators and taxicab drivers and is also understood to include employment as truck drivers.

The Navy Department through its Circular P14-2 expressly discourages commanding officers from authorizing Naval personnel to engage in part-time or temporary employment except in specific instances.

Corrosion a Maintenance Problem In South Pacific Area

The problem of corrosion has been a headache to operations in the Pacific Area, said Major A. E. Cleveland of the Ordnance Department at a recent meeting of the Detroit section of Automotive Engineers. On these coral islands, he stated, 14-gage sheet-steel left unprotected in the warm sea breeze, will rust through in 24 hours. Leather goods pick up a mold or

fungus growth in a very few days, and if left untreated, will disintegrate. Mold grows on canvas and cloth articles if left for any length of time unprotected. Even glass is subject to fungus growth and subsequent optical distortion. Wood rots and so even does human flesh where it is not properly taken care of.

What is the effect of all this on army equipment? Generally, it increases 1st and 2nd echelon maintenance requirements. Vehicles operating in or around the salt water must be washed thoroughly with fresh water each day. This applies even to the DUKWs with special water-resistant paint. Fire arms must be cleaned and oiled more frequently; all canvas must be specially treated; shoes and leather must be treated and shined; clothes and blankets must be brushed and hung in the sun often. Wood must be specially treated to prevent rot. The soldier must be careful that each cut, rash or infection is treated.

This condition calls for more alert 2nd echelon maintenance all the way through. But in some instances even this does not prevent the ever present rust, as for example in the case of some brake drums and backing plate assemblies. The brake corrosion problem is an old one in the automobile industry. Any Ordnance officer in that area would place a set of waterproof brake drums on his list of desired developments. Lacking the desired waterproof brake drums, he must remove the wheels and drums about every 300 miles, brush and clean the rust off, and paint them with a water-resisting paint, which may last for another 300 miles.

There are other problems of corrosion, including gasoline and brake lines when not made of copper, generator brush holders, clutch and brake pedal return springs, body and all sheet metal parts if not constantly polished for paint covering. The mufflers on the jeep have been removed from customary location on the underside of the chassis to a point over the bumper in front of the radiator in order to get this heated and rapidly corrodin part out of the water.

It is only fair to remark in passing, said Major Cleveland, that the volcanic ash and sulphur from active volcanoes, and the humid climate with persistent rains, are factors which should be counted along with salt water and salt air contributing to corrosion.

(TURN TO PAGE 152, PLEASE)



A SINGLE
**CENTRAL
ALL-SIZE HOSE CLAMP**
FITS OVER 100 DIFFERENT HOSE SIZES

SEND FOR
FREE
SAMPLE

45-7C

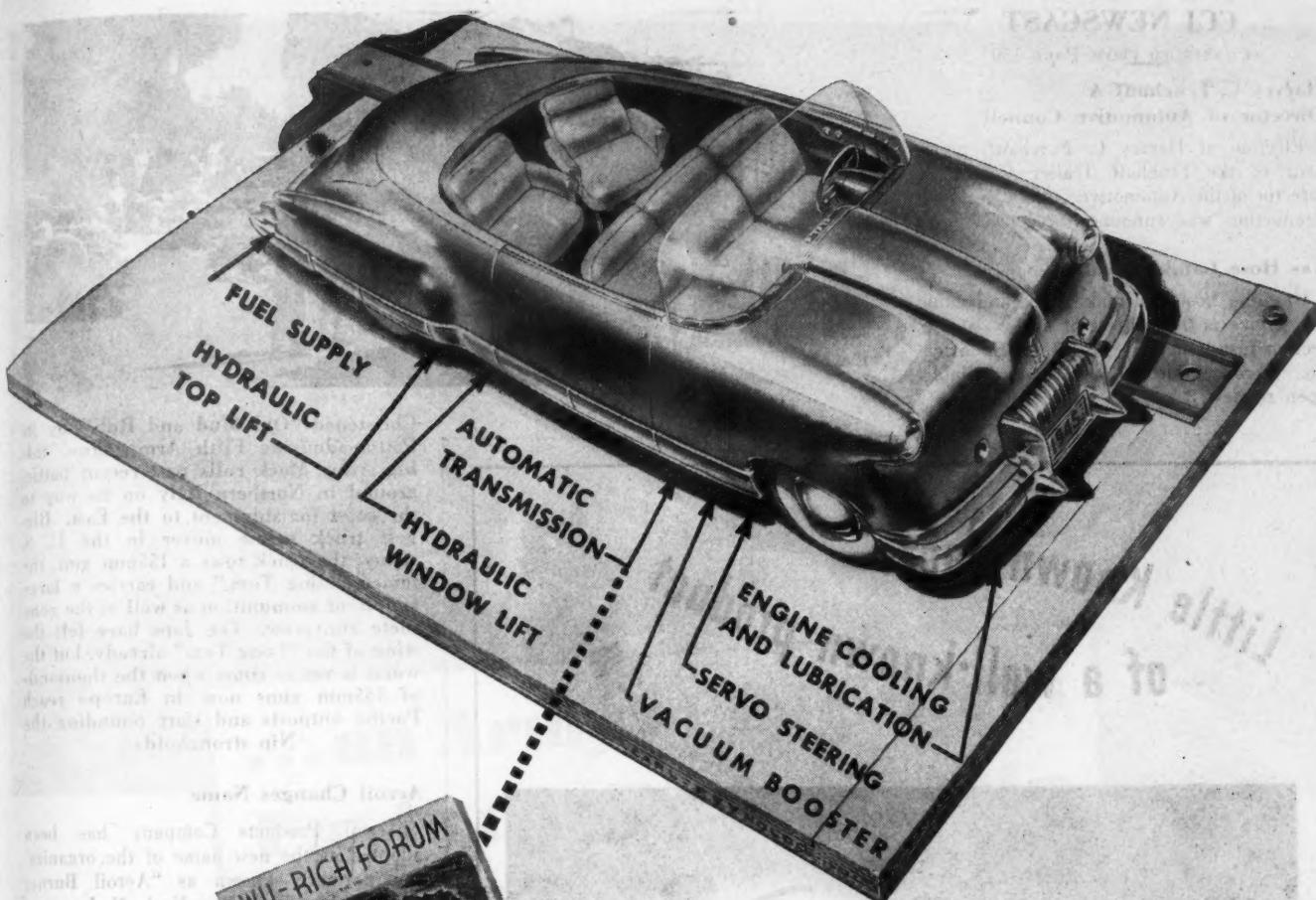
Like the jungle lion, the ALL-SIZE is tops in the field. It has unmatched clamping power; fastest clamping action; plenty of take-up; goes on or off in the least time, without disconnecting the hose line; is easiest to use in hard-to-get-at places; is leak-proof, rust-proof, self-locking; won't strip or loosen.

Best of all—because a single size ALL-SIZE does fit over a hundred different hose sizes—it offers every advantage to jobber, dealer, fleet owner and mechanic . . . eliminates the need for big clamp inventories, saves time and labor, gives lasting satisfaction every time on every job!

CENTRAL EQUIPMENT CO. 900 S. WABASH AVE.
CHICAGO 5, ILLINOIS



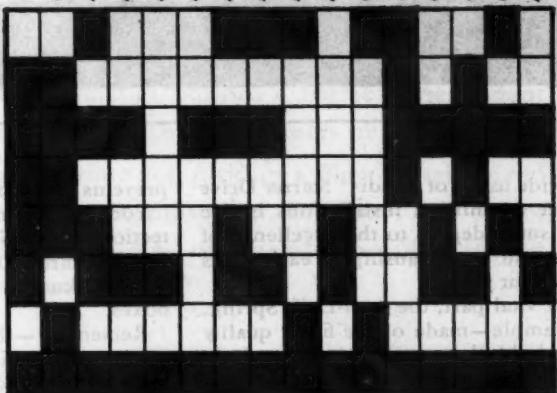
Richard H. Rowland, vice president in charge of the National Battery Co.'s Gould Industrial Division, Depew, N. Y., will assume the added responsibility of general sales manager



Check List for HYDRAULIC ENGINEERING Requirements

QUIET OPERATION
COMPACT DESIGN
LOW SPEED PRESSURE
HIGH PRESSURE
HOT OIL OPERATION
LONG LIFE
HIGH SPEED
HIGH VACUUM
LOW TORQUE
CONTINUOUS PULL
THIN FLUIDS
CAPACITY AT PRESSURE
UNIFORM FLOW
QUICK PUMPING
HIGH EFFICIENCY

FUEL SUPPLY
HYDRAULIC TOP LIFT
AUTOMATIC TRANSMISSION
HYDRAULIC WINDOW LIFT
ENGINE LUBRICATION
SERVO STEERING
VACUUM BOOSTER
EATON ROTOR PUMP



EATON

EATON MANUFACTURING CO. • WILCOX-RICH DIVISION

9771 FRENCH ROAD • DETROIT 13, MICHIGAN

JULY, 1945

Use postage-paid card inserted in this issue at page 59, for free information on advertised products

151

CCJ NEWSCAST

(CONTINUED FROM PAGE 150)

Harvey C. Fruehauf A Director of Automotive Council

Election of Harvey C. Fruehauf, president of the Fruehauf Trailer Co., as a director of the Automotive Council for War Production was announced recently.

Gas Hose Catalog Available

Gasoline hose for tank truck and tank car service is the subject of a new catalog section just issued by The B. F. Goodrich Co., Akron, Ohio. Copies are available upon request.



Christened "Old Mud and Ruts" by its Patton-admiring Fifth Army Crew, this big Army Mack rolls past recent battleground in Northern Italy on its way to the coast for shipment to the East. Biggest truck prime mover in the U. S. Army, the truck tows a 155mm gun, the famed "Long Tom," and carries a large supply of ammunition as well as the complete gun crew. The Japs have felt the sting of the "Long Tom" already, but the worst is yet to come when the thousands of 155mm guns now in Europe reach Pacific outposts and start pounding the Nip strongholds.

**Little Known facts
of a well-known product**



**THE ANTI-DRIFT SPRING
PREVENTS UNINTENDED MESSING**

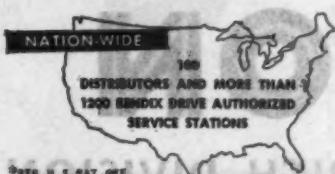
The wide usage of Bendix* Starter Drive in over 65 million installations is due in no small degree to the excellence of design and workmanship of each of its component parts.

That vital part, the Anti-Drift Spring, for example—made of the finest quality wire—holds the starter pinion away from the flywheel when not in use and thus

prevents unintended meshing.

For quick identification and your protection, the Anti-Drift Spring and other Bendix Starter Drive parts are packed in the well-known blue and white Bendix boxes.

Remember—the name Bendix is your assurance of durable construction and customer satisfaction.



Bendix Drive

PRODUCT OF
Bendix
AVIATION
CORPORATION

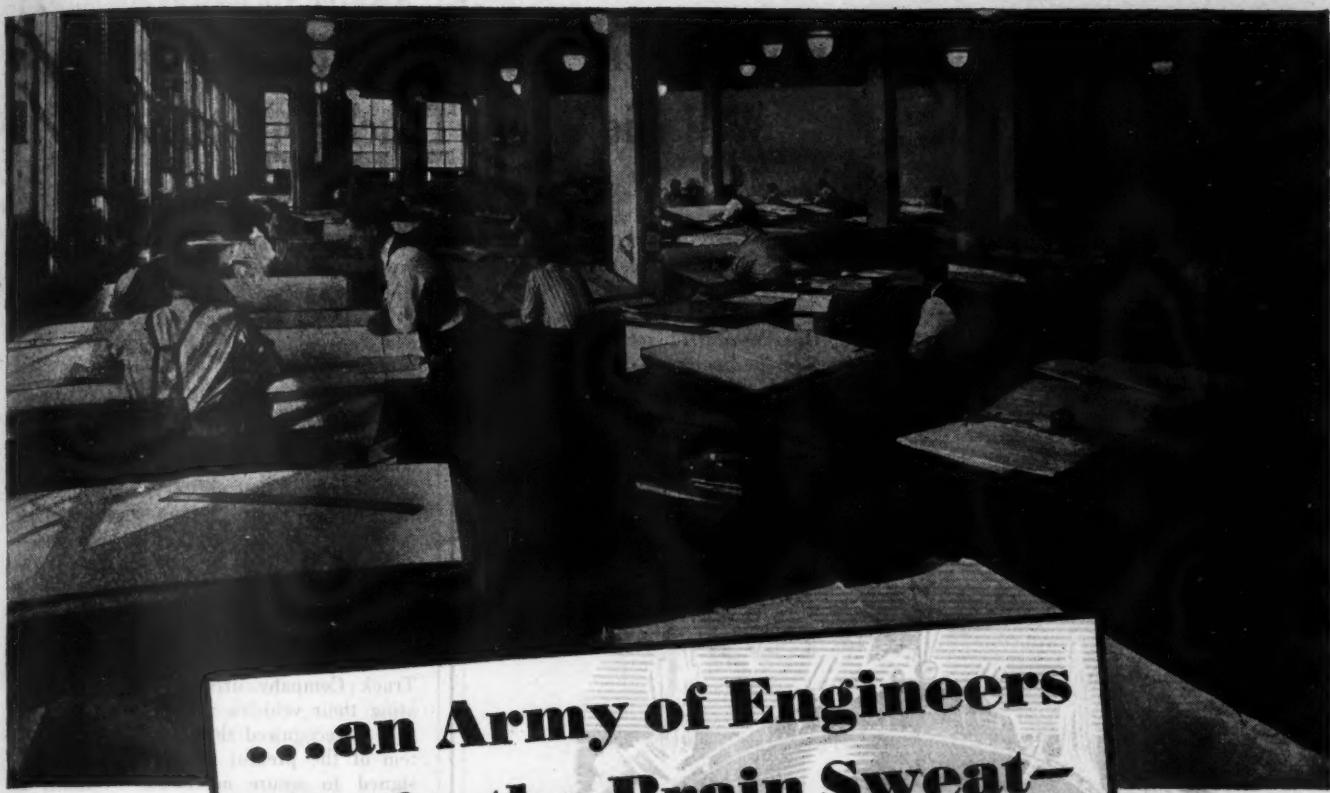
ECLIPSE MACHINE DIVISION, ELMIRA, NEW YORK

James C. Taylor
has been appointed
branch manager
of the Trailmobile
Co.'s new factory
branch in Syra-
cuse, N. Y.



Lee D. Cosart,
former sales man-
ager for Dodge
Truck Division,
has joined Joe
Fisher as a partner
in the Dodge-
Plymouth dealer-
ship at Portland,
Ore.





...an Army of Engineers
Put in the Brain Sweat-

to give you
Mechanics Hand Tools that make money

PACKED WITH POWER

PICK UP A NEW BRITAIN HAND TOOL. YOU'LL SENSE THE FACT—INSTANTLY—it took some real engineering to get that "sweet feel" of business-like ability.

No other Hand Tool manufacturer can call upon as extensive engineering facilities as New Britain. Here, an acre of engineering science is devoted not alone to Hand Tools but to the development of the famous New Britain Machines that produce them. Significantly, this Company not only manufactures these superb Hand Tools but builds the big, amazingly precise Automatics that form many of them... New Britain Automatics, built to a degree of permanent accuracy as fine as 2/10,000ths of an inch—1/10th the thickness of a human hair.

You'll see and "feel" it the very first time you pick up a New Britain Hand Tool. Ask your NAPA Jobber's salesman to show you the Line... try one of these Tools and you'll go for them all—they're that good. The New Britain Machine Co., New Britain, Connecticut.



The complete New Britain Line for Automotive, Aircraft, General Maintenance & Production Needs is sold by leading Jobbers.

New Britain



The Army-Navy "E" Pennant, with stars, flies over New Britain's plants, signifying outstanding production of machine tools, aircraft engine parts and projectiles.

GREATER STRENGTH • BETTER FIT **HAND TOOLS**

CCJ NEWSCAST

(CONTINUED FROM PAGE 152)

The rest that remains overseas will be used in building up the U. S. export markets essential to full employment after the war. Property will also be made available to other agencies to whom Congress has delegated the responsibility of helping to rebuild devastated areas or assist underdeveloped countries. The plan will have as its objective the best possible return for the property whether it be in dollars or in other benefits to the nation as a whole.

Improvement in Design, Standardization Will Aid Army Truck Operation

Personnel of all ranks in the Armed Services complain about the large number of different sizes, makes and models of transport vehicles which have been furnished, said Lt. Col. E. H. Holtzkeper, Chief, Transport Vehicle Branch, Development Division of Ordnance, at the Detroit Section of the Society of Automotive Engineers. This war must run its course with

the Army suffering complications of procurement, supply, maintenance and training, he said, due to the large number of types of transport vehicles it must continue to use.

This condition must not exist when the next war plagues us, he continued. The problem can only be solved by the automotive industry and the War Department working cooperatively with patriotism and a sense of duty to the next generation of Americans, guiding their actions.

It is believed that military operations may be conducted with lower mortality rates if transport vehicles incorporated more power and top speed than they do at present. The major portion of the drivers of all types of vehicles report that their particular vehicle was hard riding and tiring to drive. This was especially true with Quartermaster Truck Company drivers, who were operating their vehicles without adequate rest.

It is recognized that the suspension system of the present vehicles has been designed to secure maximum durability at the expense of riding comfort. However, it is felt that driver fatigue could be reduced if more attention were concentrated on designing the components in the cab for comfort and ease of control.

The open type cab is considered to be very satisfactory by drivers for use during warm weather and with side curtains during occasional rains. However, drivers did not like the open cab during the winter months as side curtains were frequently lost or torn, and when available they were not as windproof and did not afford as good overall vision as the closed cab. Drivers in France and Belgium were making closed cabs from wood, plywood, and sheet metal. The ideal cab would be of the closed type designed so the top and sides could be removed and disassembled into a compact unit.

Ordnance personnel definitely prefer the steel body to the wood body, due to the fact that when the body is involved in a wreck, the wooden body is more difficult to repair. The steel body can be hammered back into shape or welded together.

(TURN TO PAGE 240, PLEASE)



LETTERS FROM READERS

(CONTINUED FROM PAGE 37)

he says "never to use a pipe extension on a wrench." However, it is a condition—rather than a theory—which often confronts the mechanic. What would the Boss say if the mechanic said "I can't loosen that nut." Chances are the Boss would say "Slip a piece of pipe on the handle and pull—you . . .!"

We agree that much depends upon the manner in which the extension is used. We have before us a catalog of a prominent wrench manufacturer which shows "heavy-duty, stub end, box type wrenches" together with "one-piece, tubular handles" for use on these stub end wrenches. Our dictionary defines "Pipe"—A tube or any hollow, tubular thing." We could call our pipe a handle. But the mechanic will probably continue to call it a pipe.

Right here we agree with Mr. Miller, and the wrench manufacturer, who shows a "locking device" (a pin or bolt though wrench shank and tubular handle would do) to keep the handle from slipping off and resulting in personal injuries.

Our reason for suggesting a short stub wrench, with a 6-foot handle, is that it is much less expensive to replace the short, stub wrench socket of fine steel when it wears (and continue to use the 6-foot handle of cheaper steel), than to replace a one-piece, drop-forged wrench of fine steel, 6 feet long. Most heavy duty wrenches have handles of round cross section on which a pipe—or rather tubular handle—can be easily fitted, instead of being shaped to fit the mechanic's hand.

A U-bolt one inch in diameter, even when of only 100,000 pounds tensile strength per square inch steel, requires nearly 1000 foot pounds of torque to bust it. Or nearly 1500 foot pounds torque, if of heat treated steel of 150,000 pounds tensile strength. Unless the wrench affords sufficient power to bust the bolt, will you have sufficient and properly "controlled" wrenching power to tighten the nut sufficiently?

Of course, the ideal answer is to use
(TURN TO PAGE 158, PLEASE)

now— CLEAN TRUCKS and BUSES MORE QUICKLY, EFFECTIVELY, ECONOMICALLY with MOBO'S new PROTOL CLEANER

After years of research—MOBO offers to fleet operators a new liquid cleaner that does *all* the things owners have asked for! PROTOL CLEANER is designed *specially* for cleaning bus and truck finishes . . . so constructed that it cleans thoroughly—yet prevents injury to the finish. Cleans quickly—no loss of time due to unnecessary scrubbing . . . saves labor—no need to wipe down after rinsing . . . most economical—4 ounces makes 12 quarts of cleaning solution. MOBO PROTOL CLEANER is priced within the reach of *all* fleet operators and packaged to meet the needs of fleets of all sizes—in 1-gal., 5-gal. and 54-gal. containers. Ready for shipment now! Ask your jobber—or write direct.

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SPECIFY . . .

Flare
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The Complete Line
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FOR CAR BEAUTY
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There is a FLARE-chemical for every automotive need. FLARE quality is unexcelled. Specify FLARE for added trouble-free mileage. Many FLARE chemicals packed in shop size containers for economical truck maintenance. Ask your supply house!

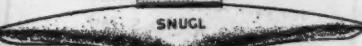
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THE BELL COMPANY, INC.
411-15 NO. WOLCOTT • CHICAGO 22, ILL.



SNUGL FAD-A-WAY
AUTOMOTIVE
WHEEL BALANCING WEIGHTS

TRUCKS • BUSES • PASS. CARS



PAT. NO. D-119-321—D-5189

FACTORY
MID-WESTERN AUTO PARTS
KOKOMO, IND.

WEST COAST DIS.
MID-WESTERN AUTO PARTS
910 W. PICO BLVD.
LOS ANGELES 15, CALIF.

(CONTINUED FROM PAGE 157)
a large torque wrench but, during the war, there has been a considerable

shortage of large torque wrenches, large beef-steaks and several other things.
What do shop men think about this?

The Disadvantages of Headlight Glare Eliminators

★ THE LETTER

EDITOR, COMMERCIAL CAR JOURNAL.

DEAR SIR:

I WAS much interested in the article on Polarized headlighting for motor vehicles by Mr. Geschelin appearing in

May issue of COMMERCIAL CAR JOURNAL.
(Page 82.)

My interest centers around the fact that I have experimented with a great many gadgets and ideas designed to eliminate the blinding and fatigue producing effects of headlight glare.

WHEN SLUDGE SAYS

"WHOA" TO YOUR HORSEPOWER

Switch
to



If motor troubles are jamming your operating schedules, it will pay you to put AMALIE H-D oil to work for your fleet at once.

AMALIE H-D is straight-run refined from 100% Pennsylvania Crude and has all the important characteristics of a complete heavy-duty oil. It has the necessary detergent quality . . . cleanses and washes away carbon and other harmful products of com-

bustion. Its anti-oxidant action keeps oil from oxidizing and forming varnish and sludge deposits on vital parts.

Its strong, tough, corrosion-resisting film—20% oilier—stands up under the toughest operating conditions.

Remember AMALIE H-D Oil — and don't forget regular AMALIE Pennsylvania Motor Oil and AMALIE Lubricants.

For Essential Trucks • Busses • Tractors • Construction Equipment

See your AMALIE Distributor
For This A. C. D. S. Test

Your AMALIE Distributor offers you the opportunity to have the used oil from the crankcases of troublesome trucks tested and analyzed impartially by skilled laboratory technicians. AMALIE CRANKCASE DRAINALYSIS SERVICE has helped many fleet owners to put an end to costly troubles and lay-ups. No obligatio-

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Of those that I have seen, all had the big disadvantage of partially blocking the drivers own view in addition to blocking the glare.

From a glare eliminating standpoint the most practical solutions that I have experimented with have been Polarized light and a device operating on the principle of a motion picture shutter with an alternating current lighting system. Of these two, Polarized light seems to offer the best solution all things being considered.

For my experiments I used two special 125 C.P. headlight bulbs installed in auxiliary fog lamps and with the lenses covered with the Polarized films. The materials I used were probably not as efficient as those presently proposed for postwar use, but despite this the existence of a number of inherent disadvantages were indicated by my tests.

I made temporary installations on a number of passenger cars and one long distance truck and without exception the drivers objected to the apparent lower visibility when using the Polarized lights as compared to their regular sealed beam lights—despite the 125 C.P. bulbs. In all cases, this was without the analyzer in place on the windshield.

Mr. Geschelin uses a figure of 50 per cent loss of light from the headlights. This seems to agree with the results that I obtained except that it should be pointed out that there is a similar loss through the analyzer. The necessity therefore for the much larger bulbs can readily be appreciated. It was also noticed that the transparency of the Polarizing material decreased in service due apparently to continual exposure to sun light.

One of the strong objections made by the drivers to whom I showed my lights was the presence of the permanent analyzer on the windshield directly in front of the driver's eyes.

In order to eliminate this objection I developed the small device described in the attached patent with the expressed purpose of providing a device that would offer an absolute minimum interference with the driver's view and the necessary motions in driving his vehicle past an approaching vehicle at relatively high speed.

This device proved to be such a simple and effective glare restrictor in itself that I patented it for this purpose for installation on present cars and trucks

(TURN TO PAGE 160, PLEASE)

KING BEE

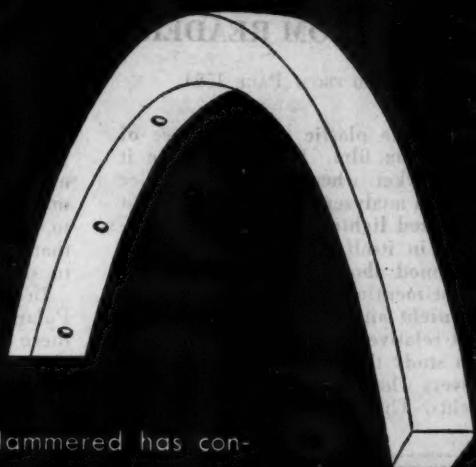
"...pioneers in
safety equipment"

lamps • mirrors • reflectors • flares

AMERICAN AUTOMATIC DEVICES CO.

Harrison, Throop and Congress Streets

CHICAGO, ILLINOIS



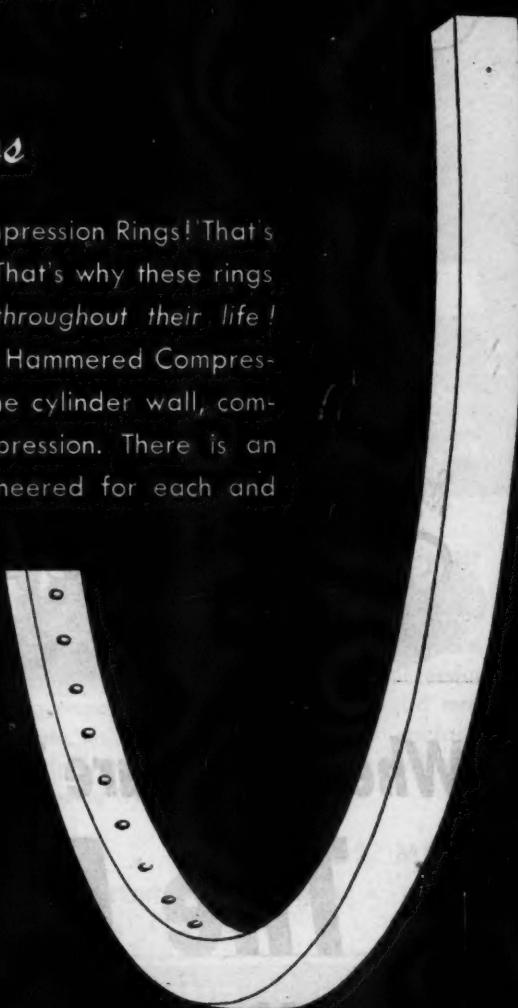
Ring Leaders

Since the earliest days of the automobile, American Hammered has consistently supplied piston rings that are a year or more ahead of the field. Those to whom efficient, economical engine performance is the only standard of piston ring value demand American Hammered! Koppers Company, Inc., American Hammered Piston Ring Division, Baltimore, Maryland.

AMERICAN HAMMERED

Compression Rings

The tension is hammered into American Hammered Compression Rings! That's why their tension is not affected by heat or by wear. That's why these rings keep their tension, assure dependable performance throughout their life! The tension hammered into the inside face of American Hammered Compression Rings results in equal outward pressure against the cylinder wall, compensating for wear and maintaining maximum compression. There is an American Hammered Piston Ring Set especially engineered for each and every engine.



American Hammered Piston Rings

A KOPPERS PRODUCT



LETTERS FROM READERS

(CONTINUED FROM PAGE 158)

using the blue plastic vane in place of the Polarizing film. I plan to place it on the market when the war is over either as an analyzer in conjunction with the Polarized lighting system or as glare restrictor in itself with the blue plastic as mentioned above.

I might mention that in using this device at night and driving along narrow roads at relatively low speed, it was possible to study the reactions of approaching drivers when confronted with glaring headlights. The device permits the lights

to be blocked out but does not block out the parts above and below the lights so that a fairly clear view can be secured of these parts of an approaching vehicle.

It was very apparent that many drivers become completely blind when passing glaring lights. Some drive over to the extreme right side of the road but the majority seem to wander from one side to the other. It is probably remarkable that there are not more accidents due to side swipes.

In addition to the characteristics of Polarized light previously mentioned there are also a number of others that the motoring public and pedestrians will have to become reconciled to if Polarized lights are adopted. For example:



**When Lives are in Danger—
The Best
is None Too Good!**

American Safety Tank Co.

UNDERWRITERS LABORATORIES, INC., A. U., 1302

U. S. PAT. NOS. 2090197 & 2268697

KANSAS CITY 8, MISSOURI, U. S. A.

1. The haze now visible from present lights, particularly when two approaching vehicles come up opposite sides of a hill is materially reduced so that neither driver may be aware of the approach of the other until the lights themselves become visible. The same thing applies to driving in fog or dust.

2. When driving on narrow high crowned roads the Polarization of the lights as viewed from the analyzer varies in intensity as the two cars (and lights analyzer) lean over towards the right when passing.

3. Passengers sitting in the front seat along side of the driver and out of line with the analyzer are annoyed by the intensity of the approaching Polarized lights particularly on the lower slung cars. This applies also to bicycle riders, motorcycle riders (including motorcycle police) and pedestrians.

4. Most important of all, the labor and materials required to convert the lighting systems of present cars to the Polarized system is considerable. The two lights I used together drew 25 Amps, and I understand that the proposed lamps will draw even heavier currents. When this is added to normal current requirements of present passenger cars equipped with radio, heater, etc., the size of the generator, regulator, wiring and battery required can be appreciated.

It must be admitted that, scientifically at least, Polarized lights offer the one real solution to the glare problem. Whether they can ever be developed to a practical workable form that will be acceptable to the usually critical American motoring public, time alone will tell. Perhaps the rapid construction of divided highways after the war will eliminate to a large extent the hazard factor from headlight glare and the need for elaborate glare eliminating systems.

O. WIEDERHOLD,
Hyattsville, Md.

★ COMMENT

MR. WIEDERHOLD'S comments speak for themselves. But speaking for Mr. Wiederhold, his views may be given greater weight by readers if they know that he is a practical man who has specialized in electrical matters. He has had experience with large private and government fleets.

END

(Please resume your reading on P. 38)

STANDARD & SPECIAL TRUCKS ANY SIZE OR TYPE

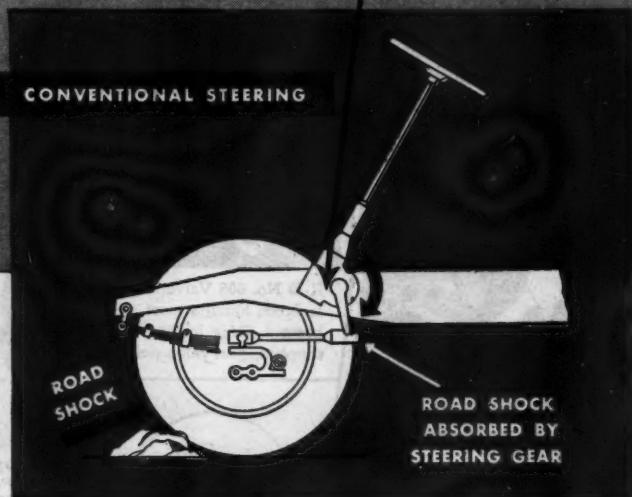
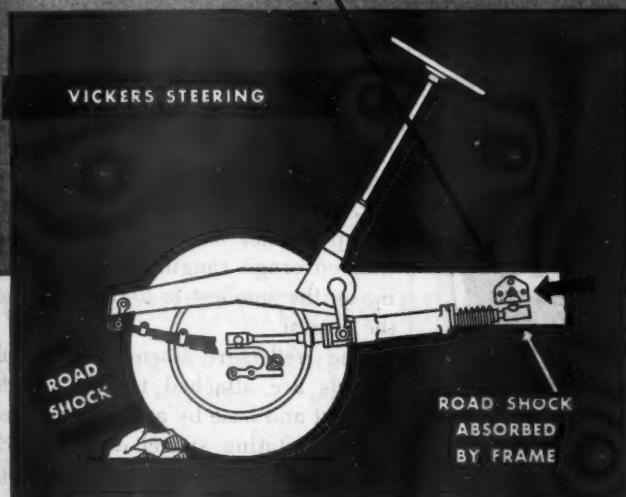


AVAILABLE TRUCK COMPANY
2501 Elston Ave., Chicago 47, Illinois

VICKERS Hydraulic POWER STEERING

Transmits Road Shock Thrusts to the

FRAME... instead of to the
Steering Gear



With Vickers Hydraulic Power Steering, no road shock can be transmitted to the steering gear and to the driver . . . road shock thrusts are transmitted to the frame. A vehicle can be driven over the curb, through sand, and on rough ground with no "fight" from the wheel. A flat tire will not cause swerving. A light touch on the steering wheel is sufficient at all times.

Among the many other important advantages

of Vickers Hydraulic Power Steering are: greater driver efficiency by reducing fatigue to a minimum, easy application to existing chassis designs, automatic overload protection for both hydraulic system and steering linkage, and 15 years of successful operating experience on trucks, buses, road machinery, etc. Ask for Bulletin 44-30 which contains complete information about the Vickers Hydraulic Power Steering System.

VICKERS Incorporated 1418 OAKMAN BLVD. • DETROIT 32, MICH.

Application Engineering Offices: CHICAGO • CINCINNATI • CLEVELAND • DETROIT • LOS ANGELES • NEWARK
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**VICKERS Hydraulic POWER STEERING is
Simple . . . Compact . . . Easily Installed**

POWER STEERING BOOSTER

OVERLOAD
RELIEF VALVE

NEW PRODUCTS

(CONTINUED FROM PAGE 60)

Turco Products, Inc., Los Angeles 1, Calif. It has proved to be particularly effective in the removal of the heaviest, most stubborn grease and dirt from iron and steel surfaces, concrete, brick, and gasoline and diesel engines.

This compound combines a high degree of quick cleaning energy with the maximum ability to soften water, which results in producing reliably clean work, rinsing freely, and leaving no film, the manufacturer states. It was designed to function without the loss of cleaning power in the hardest water, and to prevent the depositing of hard water scale, which clogs coils and other vital parts of steam cleaning machinery.

Use Free Postcard For More Details.

P97. Portable Infrared Units

The Fostoria Pressed Steel Corp. has designed a complete new line of portable infrared equipment for drying, preheating, etc. The complete group of four models provide radiation coverage ranging from 275 sq. in. on the smallest to 2000 sq. in. on the largest.

The reflector assemblies on all models are attached to the upright support and base by an arm equipped with a rotating swivel device which permits radiation in any direction. All reflector assemblies move up or down on the upright, thus giving complete flexibility. Models utilize either gold plated reflectors or gold reflecting surfaces to gain maximum efficiency from the infrared energy.

The majority of the models are wired to accommodate lamps ranging from 125 to 500 watt, 120 volt. Heavy

(TURN TO PAGE 164, PLEASE)

K-D TOOLS

The Hustlers for Your Toolbox!



REPAIR ENGINE CRACKS IN 30 MINUTES . . .

Repairs Cracked Blocks, Water Jackets, Valve Ports. Quick acting . . . works in 30 minutes. Easy to use . . . no special equipment or training needed.

Keep Wonder Seal always handy for an emergency. Ask your Jobber.

OFTEN IMITATED !
NEVER EQUALLED !
WRITE FOR FOLDER

WONDERWELD PRODUCTS

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FOUR AND SIX WHEEL CHASSIS
GASOLINE AND DIESEL POWERED
CHAIN DRIVE
ENCLOSED DRIVE

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LONG MANUFACTURING DIVISION

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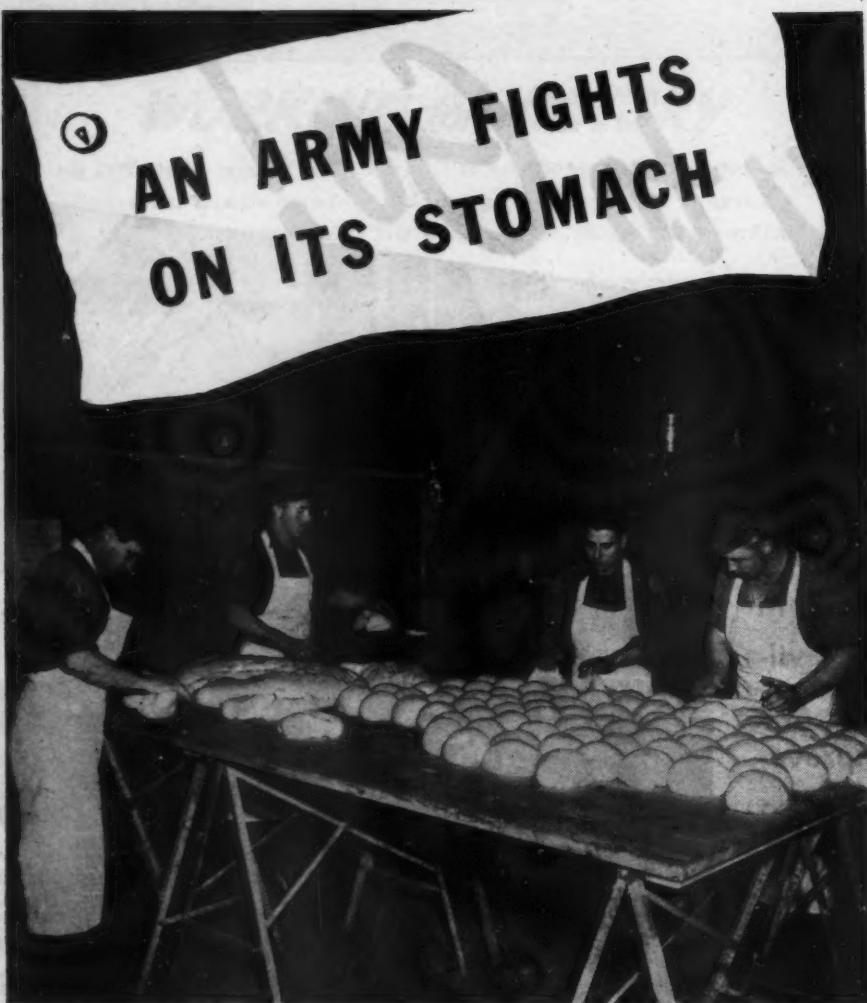
DETROIT 12, MICHIGAN • WINDSOR, ONTARIO



LONG

CLUTCHES • RADIATORS • OIL COOLERS





SIGNAL CORPS PHOTO

● The Quartermasters know that food is the backbone of Army morale. That's why they've made our Yanks the best fed soldiers in the world. Among their other duties are the providing of shelter and clothing for our far flung armies. There's little glory in their routine, but they rate "ace high" with every G. I.

EDWARDS IRON WORKS, INC., SOUTH BEND, INDIANA

★ Edwards is making a sincere effort to contribute its small share in helping these troops... and all of the United Nations... with the material they require. Semi-trailers for combat use are, naturally, included.

EDWARDS  SEMI-TRAILERS

HASKELITE

PLYMET

INCREASES PAYLOAD — Carry up to $\frac{1}{2}$ ton more payload every trip. 20-gauge steel, fir plywood and felt liner construction weighs 2.5 pounds total per square foot. $\frac{1}{2}$ -inch Plymet weighs 1.5 pounds per square foot. Measure the panel area of your truck to determine your exact savings. Specify Plymet for greater payload. Write for details.

HASKELITE MANUFACTURING CORPORATION
New York — Chicago — Detroit — Cleveland — St. Louis
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For maximum storage battery economy and performance in bus and truck operations specify Kathanode.

KATHANODE



THE ORIGINAL SPUN GLASS BATTERY
The Kathanode Corporation • Chicago, Ill.

NEW PRODUCTS

(CONTINUED FROM PAGE 162)

duty casters permit easy rolling. The manufacturer suggests that automotive and electrical repair shops will find in this new line a suitable model for every quick heating job.

Use Free Postcard For More Details.

P98. Valve Reseating Tool Set

Precision-made cutters designed by the New Britain Machine Co., New Britain, Conn., have seven blades irregularly spaced and set at the exact angle. They produce a smooth, even surface, and the blades are keen enough to cut through burnt or glazed steel. The complete set, packed in a rugged metal box, includes 7 cutters, one Ford V-8 pilot bushing and 18 pilots and handle.

A priority rating of AA-5 or higher is required for the purchase of the set.

Use Free Postcard For More Details.

P99. Electric Marker

Anything and everything can be marked with a new electric marker just announced by the Ideal Commutator Dresser Co., Sycamore, Ill.

Although small in size, only 6 in. long and 10 oz. in weight, life tests prove that this new marker can be used continuously on the toughest of marking jobs.

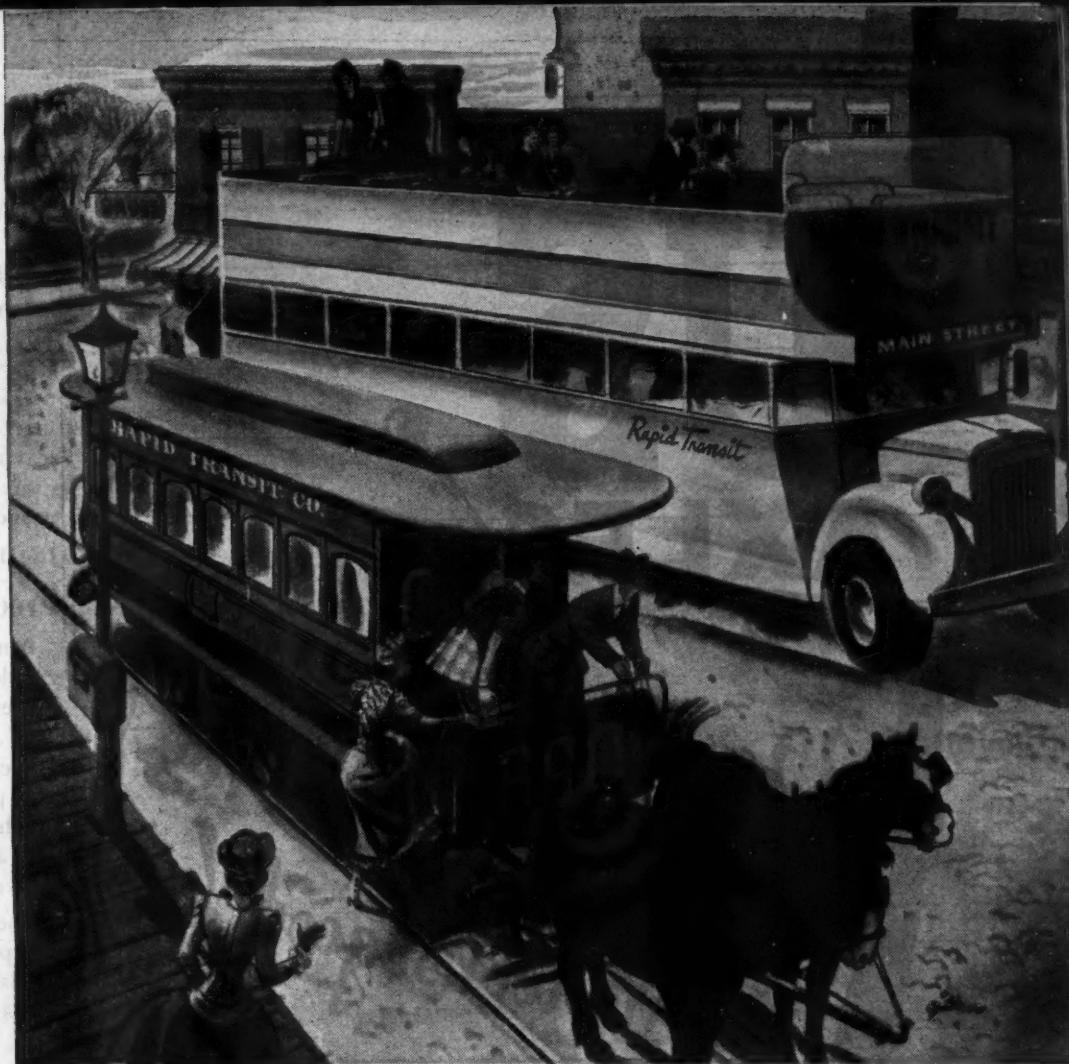
Using an entirely new principle in design, the power of the cutting stroke has been increased by 30 per cent over previous models. Yet, an adjusting nut makes it possible to vary the impact so that it can even be used to mark on glass. Shaped

(TURN TO PAGE 166, PLEASE)

big

big

There's
been a
big change



★ Ever-increasing loads and heavier traffic have brought many essential improvements to transportation since the horse-car era... but only one outstanding change in tapered roller bearings.

That improvement came when Tyson developed the "all-rolls" design, with 30%

more load-carrying rollers around the race-way. The extra capacity, longer life and extreme rigidity have won for Tyson an enviable reputation among operators of heavy-duty equipment.

If yours is a "tough job," count on Tyson to tame it.



TYSON BEARING CORPORATION, MASSILLON, OHIO

COUNT THE ROLLS • THE ROLLS COUNT



TYSON

THE LAST WORD IN ANTI-FRICTION ENGINEERING

NEW PRODUCTS

(CONTINUED FROM PAGE 164)

US AXLES

25 years of pioneering
stand behind us. The
future looks good!

**THE U. S. AXLE CO., INC.,
POTTSTOWN, PA., U. S. A.**

to fit the hand, it can be held and used to write almost as easily as a pencil.

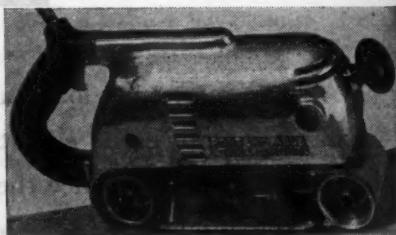
The Ideal Marker operates from any AC electrical outlet. Operating like a small electric hammer, it makes 7200 cutting strokes per minute, cutting right into the surface, leaving lines that cannot be wiped away or worn off with ordinary usage.

Use Free Postcard For More Details.

P100. Portable Surfacer

A modern streamlined hand sander-grinder has been developed by the Porter-Cable Machine Co., Syracuse, N. Y., for metal and wood workers. These Take-Abouts, as they are called, are portable electric surfacers on which endless abrasive belts operate over a flat or convex shoe. A $\frac{3}{4}$ h.p., a.c., d.c. motor supplies the power.

The Take-About may be used in any position, horizontally, vertically, on its side and can be used to level joints or grind down welds.



Special features of the finisher include higher belt speed, quick acting trigger switch in handle, silent chain drive, and rubber-covered drive pulley.

Use Free Postcard For More Details.
(TURN TO PAGE 168, PLEASE)



Dependable quality drive shaft assemblies for passenger cars, trucks and busses.

Consult your local Almetal jobber for assistance on your Universal Joint problems.

THE ALMETAL UNIVERSAL JOINT CO.
1555 EAST 55th STREET - CLEVELAND 3, OHIO

**MORE FORD TRUCKS
ON THE ROAD . . . on
more jobs . . . for more
good reasons!**

FORD MOTOR COMPANY



In war or peace
B.F. Goodrich
FIRST IN RUBBER



Photo courtesy of Hercules Powder Co., Inc.

Now we're puffing pine stumps in fires

A typical example of B. F. Goodrich development in rubber

RUBBER experts have puzzled for years over how to make tires run cooler—especially big truck tires. They often get hotter than boiling water—so hot that the tires begin to disintegrate, blow out.

With synthetic rubber, the problem increases. For synthetic rubber tires generate far more heat than those of natural rubber. Chemists pondered this fact, experimented with different ways to compound GR-S, the government synthetic rubber which all tire companies now use.

One of the things used in making synthetic rubber is soap made from animal fats. B. F. Goodrich men, working with a chemical company, developed a synthetic rubber using a new kind of soap, derived from the rosin in pine stumps. Rubber made with this soap is less brittle. Tires are less subject to cracking. But even more important, they run cooler! Tires keep their strength. Tire life is increased.

Now all B. F. Goodrich truck tires are made with this new rubber—a development so important that it was long regarded as a military secret.

B. F. Goodrich research continues to improve tires for every purpose—tires for trucks and buses, for airplanes and passenger cars, tires for farm tractors and implements, for all kinds of industrial equipment. This policy of continued improvement is your assurance of quality in every tire bearing the B. F. Goodrich name. *The B. F. Goodrich Company, Akron, Ohio.*

Truck Tires **by**
B. F. Goodrich

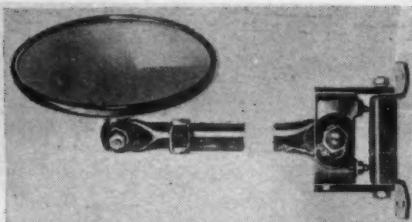
NEW PRODUCTS

(CONTINUED FROM PAGE 166)

P101. All-Purpose Mirror

Complications in mirror mounting have been eliminated by an all-purpose mirror made by Arrow Safety Device Co. Designed with a combination bracket it can be mounted either on the body or door hinge. The door hinge attachment has been made adjustable to accommodate hinges varying in size from 2 to 3

in. Complete with hinge-pin, set-screws, and telescopic shaft, it is

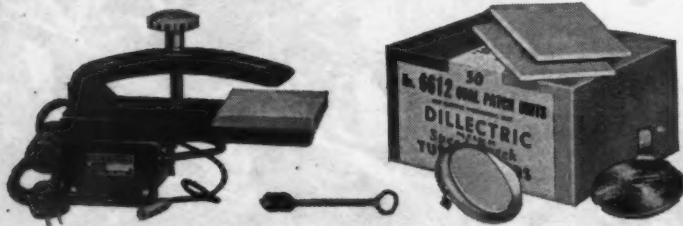


ready for use on practically any type vehicle.

Use Free Postcard For More Details.



HANDEST AND BEST WAY TO REPAIR Synthetic RUBBER TUBES



With Dilectric, anyone can do a guaranteed repair job in a few minutes. For either synthetic or natural rubber tubes, this simple, handy method completely fills, reinforces and binds the injury securely. Perfect vulcanization is assured by the automatic time and temperature controlled electric heating patch unit as used with the Dilectric pressure clamp.

This is vitally important because it eliminates the failures generally experienced with ordinary types of repairs in synthetic tubes.

Remember, all tubes are now made of synthetic rubber. Millions are already in use as identified by a red or blue stripe around the tube. Be sure of making safe repairs in these tubes by using Dilectric. Send for a free instruction folder, today.

THE DILL MANUFACTURING CO.

700 East 82nd St.

Cleveland 8, Ohio

INSTRUCTION FOLDER
Free ON REQUEST

Write, now, for the Dilectric Instruction Manual which pictures and describes in detail the proper preparation and vulcanization of synthetic tubes.

DILECTRIC
REG. U. S. PAT. OFF.
Electrically VULCANIZED
TUBE REPAIRS



P102. Fireproof Absorbent

Super-Absorbit is a highly absorbent mineral used where liquid spillages occur. It is used on surfaces where oil, grease, water, syrup, chemicals, or any liquid is spilled. It is also successfully used for acid absorption. It does not become slippery or mat when saturated.

This new product is manufactured by the AleXite Engineering Co., a subsidiary of the Alexander Film Co., Colorado Springs, Colo.

Use Free Postcard For More Details.

P103. Prewar Extinguisher

The General Detroit Corp., manufacturer of fire extinguishers and other fire fighting apparatus, announces that production is being resumed on its pre-war copper finish soda-acid and foam type extinguishers.

Discontinued early in the war because of material shortages, Red Star Soda-Acid and Floafome Foam Type extinguishers are now available.

Red Star is Underwriter inspected and approved for Class A fires in wood, textiles, paper, rubbish, etc. Floafome Foam Type extinguishers, illustrated, are similar to Red Star in construction, and produce approximately 22 gal. of fire-killing foam. Recommended for use on fires in gasoline, oil, paint, chemicals, textiles, and grease.

Use Free Postcard For More Details.

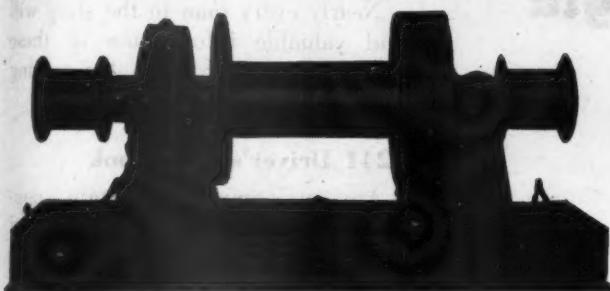
END

(Please resume your reading on P. 61)

MIRRORS • REFLECTORS
• LAMPS • MIRRORS
MIRRORS • REFLECTORS • LAMPS
LAMPS • MIRRORS • REFLECTORS
REFLECTORS • MIRRORS
LAMPS • MIRRORS • REFLECTORS
REFLECTORS • LAMPS
MIRRORS • RE
LAMPS • MIRRORS
YANKEE METAL PROD. CORP.
NORWALK, CONN.



QUICK ACTING.. *Hair-Fine* CONTROL



MODEL 91-C

Rated Capacity 100,000 lbs.
(First layer)

Gear Ratio 36:1

Model 91-C is the most powerful stock truck winch made. It is equipped with Braden's famous TRIPLEX Automatic Safety Brake and full cab controls. Users say that 91-C is the safest, and most durable truck winch ever constructed.

BRADEN Truck Winches will handle heavy loads, weighing up to 100,000 pounds, with perfect safety. The exclusive BRADEN safety feature, the TRIPLEX Brake, keeps the suspended load under control at all times. When the load descends, with the TRIPLEX in release position, no brake heat is generated. When the landing point is near, the TRIPLEX lever is brought into automatic position, and the load is landed with maximum safety.

Two models, #81 and #91-C, with rated capacities of 50,000 pounds and 100,000 pounds respectively, are available with the TRIPLEX Automatic Brake.

Write for the new BRADEN catalog for complete information about the entire BRADEN Truck Winch line.

"Buy BRADEN — They are SAFER"

BRADEN WINCH COMPANY
1001 East Admiral Boulevard

TULSA 3,
Oklahoma





Minimum Tensile Strength of 150,000 lbs. psi— is standard

Just as Lamson 1035 Cap Screws have been a *standard of quality* for years in the building of new automotive engines in Detroit, so have they become the *preferred* cap screw for automotive rebuilding and reconditioning.

Cold-working both head and thread gives proper metal flow for toughness; controlled atmosphere heat treatment gives even dispersal of carbon content, prevents decarburization of threads, and insures 150,000 lbs. per square inch *minimum tensile strength*.

THE LAMSON & SESSIONS COMPANY

General Offices—Cleveland 2, Ohio

Plants at Cleveland and Kent, Ohio; Chicago and Birmingham

LAMSON & SESSIONS
BOLTS • • NUTS • • COTTERS • • CAP SCREWS
Ask your Jobber for the Lamson Line

FREE PUBLICATIONS

(CONTINUED FROM PAGE 58)

L236 Maintenance Booklet

Here is a handy 48-page illustrated booklet that will be a valuable guide in overcoming general maintenance problems. Scores of trouble-shooting pointers and conservation hints are presented in an easy-to-read and interesting style. Drawings and cartoons help to emphasize proper practices in service and maintenance.

Special emphasis is placed on proper lubrication procedures, on causes of truck tire wear, on loading procedures, as well as on safe and correct driving for best performance and economy.

One division of the booklet is a listing of trouble shooting facts, a diagnosis arranged under appropriate headings. This will be a handy guide for mechanics as well as drivers in running down the causes of such troubles as Excessive Gasoline Consumption, Excessive Engine Temperature, Transmission Jumping out of Gear and hundreds of others.

Nearly every man in the shop will find valuable information in these pages. Get your copy by writing L236 on the postcard.

L241 Driver's Handbook

Any maintenance program, conservation plan or good intention of the fleet operator may run aground if the driver himself is unfamiliar with first echelon maintenance and proper driving procedures. Since the driver is the most important man in that truck, why not acquaint him with a few simple rules and procedures conducive to his company's conservation policies?

Here is just the book for that driver, a 32-page, pocket-size book published by a leading casualty company in the interests of conservation and safety—from the driver's viewpoint. It won't take him long to read it—and it isn't hard reading.

Broken up into divisions with such headings as Courtesy, Attention, Braking, Skidding, Parking, Backing, Night Driving and many others, the text gets straight to the point, and the theme is SAFETY.

If this booklet will save one accident, it is surely worth a once-over. Write L241 on the postcard for copy.

END

(Please resume your reading on P. 59.)



performance measured in **M**illionths

In more than 40 Army and Navy applications, American Bosch Diesel Fuel Injection Equipment is at work today on the tasks of war. Ships of all kinds, tanks, armored cars, bulldozers, and stationary Diesels for many power uses are included in the impressive list.

In American Bosch Fuel Injection Pumps, tolerances are often measured in millionths of an inch . . . thirty-nine millionths, for instance, between the cylinder wall and the plunger of the pump.

In the picture, an American Bosch craftsman is performing a vital grinding operation on the plunger. This is just one of the several critical operations on this same part . . . critical because the accurate metering of fuel is involved.

Such craftsmanship is traditional at American Bosch. Teamed with engineering experience which guides it, it continues to draw most of the nation's Diesel engine builders to Springfield for their fuel injection requirements.

AMERICAN BOSCH CORPORATION
Springfield 7, Massachusetts

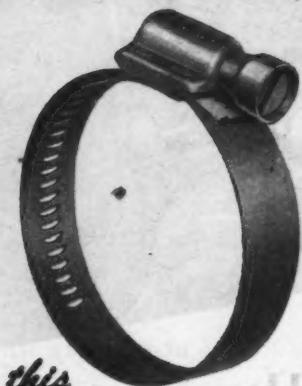
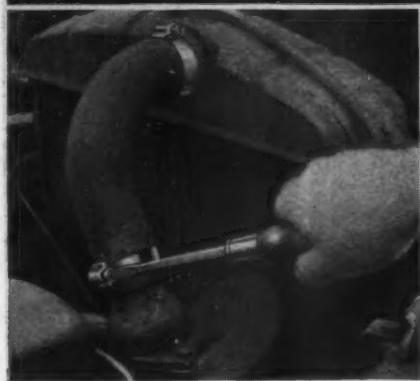
AMERICAN BOSCH

AUTOMOTIVE AND AVIATION ELECTRICAL PRODUCTS • FUEL INJECTION EQUIPMENT

"Aero-Seal"

WORM
DRIVE

HOSE CLAMPS



Try this
FOR YOURSELF!

Get a FREE sample "Aero-Seal" Hose Clamp and see for yourself how much better it is than ordinary clamps. See how it pulls up tight and leakproof with only moderate effort. See how the WORM DRIVE works—how compact it is—how much greater take-up it affords. See the quality features: no-slip cup, hardened screw, spring steel band, rustproofing. See how quick and easy "Aero-Seal" is to put on, take off, tighten up. Let "Aero-Seal" prove its own worth.

FREE! Use this coupon.

AIRCRAFT STANDARD PARTS CO.
1773 19th AVE., ROCKFORD, ILL.

Please send me one sample "AERO-SEAL"

Hose Clamp. Size preferred _____

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 35)

Parts Production Upped

For the production of replacement parts ODT requested 155,000 tons of carbon steel for the third quarter of this year. It got the full amount. This compares with 130,000 tons allotted in the second quarter when ODT asked for 150,000. Parts production during the remainder of this year should be at an adequate rate. The only fear in ODT circles is that parts produced for replacement purposes may be diverted to the production of new trucks and passenger cars.

Decentralized Rationing

Beginning August 1, the Office of Defense Transportation will decentralize the rationing of light and medium trucks. This is being done because anticipated production will be so large as to make it impossible to continue handling applications by the prevailing method. Under the decentralized scheme district offices will receive, process, approve or disapprove all light and medium applications and issue certificates of transfer. Authority to do all this will be vested in the district managers.

Quotas for Districts

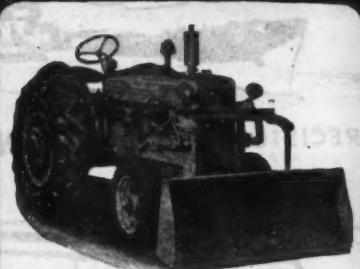
Each district office will work to a quota allotted by the ODT regional offices. The latter will receive regional quotas from the ODT Allocation Section in Washington. Each region will receive a quota patterned after its peacetime new light and medium truck registrations. It is presumed that in allotting quotas to district offices, the regional managers also will be governed by peacetime sales records. At first regional managers wanted to be brought into the decentralized scheme with power to pass on all approved applications. This meant adding personnel to the regional offices and that was enough to kill the idea in the eyes of Washington chiefs.

Groups 1, 2, 3 Preferred

In the handling of applications, district managers will be instructed that for the time being they continue to give Groups 1, 2 and 3 preference.

(TURN TO PAGE 174, PLEASE)

**BAKER "BABY"
BULLDOZER
for SNOW or
what have you?**



For clearing snow from truck parking lots, runways, approaches and highways adjacent to warehouses, the Baker Light Bulldozer, Model 282, mounted on an International wheeled tractor, is ideal. It has full hydraulic control and greater maneuverability. It gets in and out of corners—goes anywhere—easy to operate—high capacity. When not moving snow, it has many other clean-up uses—leveling yards, filling holes, removing debris, etc. Ask for Bulletin 835.



Handling manure from 1200 horses at large Indiana farm—one of many uses for the Baker Baby Bulldozer.

THE BAKER MFG. CO.
571 Stanford Avenue
Springfield, Illinois

BAKER TRUCK &
TRACTOR
SNOW PLOWS

such noted authors

MOTORS
SAW
CRAVAT

Fight motor trouble with
oil that contains a really

stable detergent



ARE you taking full advantage of the tremendous strides Quaker State Motor Oil chemists have made in producing special oils to withstand the terrific grind imposed on motor vehicles, today?

Take Quaker State *HD* Oil, for instance. This *heavy-duty* oil was developed especially to give buses, trucks, tractors super-protection. And, certainly, your over-worked equipment needs all the protection you can give.

But that isn't all. *Quaker State HD Oil* not only lubricates better, longer, but keeps engines *cleaner*—because it contains a special detergent that is *stable*. This is important, because some detergents tend to decompose.

Add it up—*Quaker State HD Oil* lubricates better, lasts longer, resists formation of coky residues and gummy "varnishes," keeps engines cleaner. This means less hours in the shop. So try *Quaker State HD Oil*, now.

QUAKER STATE
HD OIL

AND QUAKER STATE SUPERFINE LUBRICANTS

Quaker State HD Oil for your trucks, buses and tractors
Quaker State Motor Oil for your passenger cars

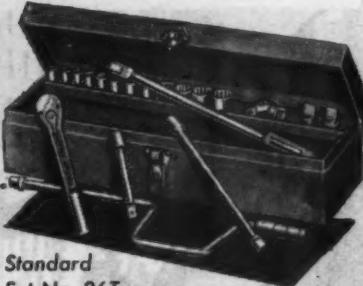


QUAKER STATE OIL REFINING CORPORATION • OIL CITY, PENNSYLVANIA



WALDEN WORCESTER WRENCH SETS

Engineered for Strength and to fit the mechanics need. Thousands of these sets have been sold here and abroad.



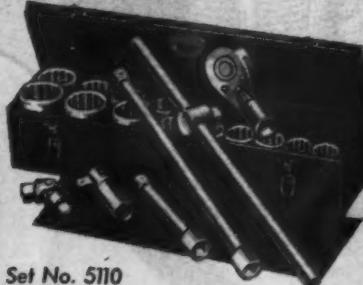
Standard
Set No. 26T

The Mechanics Favorite. Wide range of Sockets, Special Handles, Reversible Ratchet Wrench. 22 pieces in a Steel Box.



Set No. 16T

A very handy set of 17 pieces in a Steel Box.



Set No. 5110

Wide range of Sockets, Special Handle, Reversible Ratchet Wrench. 21 pieces in a Steel Box.

Send for Catalog No. 141 picturing a full line of Automobile, Aircraft and Radio Tools.

WALDEN
WORCESTER
WRENCHES

STEVENS WALDEN, INC.

468 SHREWSBURY STREET

WORCESTER, MASSACHUSETTS

WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 172)

Decentralized truck rationing will give district offices a task of unprecedented magnitude. Some idea of it can be gained from the following statistics. In the six-month period, October, 1944, to April, 1945, the district offices received 216,000 applications for trucks of all sizes. Of these 65 per cent were approved and sent to Washington. There 95 per cent of the approvals were okayed and issued certificates of transfers. This means that 133,380 trucks of all kinds were rationed out. It was a record six-month truck rationing period. If the ceiling production of 440,000 trucks is reached during the last half of this year and ODT's share for civilians is 396,000, there will be available 376,200 light and medium trucks for rationing by the district offices. It should treble, at least, the work of these offices.

Dangers in the Plan

The top side of ODT is not unmindful of the potential dangers in the situation. If the statisticians are correct in estimating that there is a built-up demand for 2,200,000 trucks, and if applications were made by all who are in need, there would be a swamping of district offices with applications that would bog down rationing machinery. Under a deluge of applications rationing of light and medium trucks would become a mere rubber-stamp process on the part of district offices to get out from under, or so much time would be taken up giving each application the detailed consideration it deserves that the district offices would not be able to ration all of the available trucks. If rationing were to become a rubber-stamp proposition there would be no reason to continue it. If available trucks were not disposed of and were allowed to accumulate on branch and dealer floors, it is almost certain that truck dealers would beg their Congressmen to intercede and provide relief. Congressmen are receiving letters right now from dealers who want an end of truck rationing, and such requests could be expected to multiply under a condition such as cited above.

Allocation Section Cuts

District offices will continue to receive applications for light-heavy, heavy-heavy and off-the-highway trucks. The system of handling them will remain as at present. Final approval and issuance of certificates will be handled by the ODT Allocation Section in Washington. Decentralization of rationing the lights and mediums will mean much less work for the Allocation Section. Plans already are afoot to cut down on personnel. This includes some of the executive personnel and a large amount of clerical help. The record section will be increased by one, it is understood. Efforts will be made to keep on top of a record amount of rationing statistics.

Demobilization Details

Plans for the demobilizing of the ODT Highway Transport Department made headway during the past 30 days. Dismissal of personnel in certain sections has been ordered. The Traffic & Vehicle Registration Section will be washed up shortly so far as personnel is concerned and its functions transferred to the For-Hire Carrier Section. The Section of Statistics is being cut to a skeleton force. During the quarter beginning June 1 about 500 of the Highway Transport Department's 3083 employees will be dismissed. The majority will be field personnel. The plan on dismissals is such that when the fourth quarter of the fiscal year rolls around only 500 persons will remain in the Highway Transport Department. Regional managers were called in to Washington on June 25 to discuss personnel matters. Civil service ratings are presenting some difficulty. Frequently the men ODT would like to dismiss first have a higher rating than key personnel which ODT would like to hold. Since none of the men involved is a Civil Service careerist ODT is trying to get a ruling that would give it discretion in the matter of dismissals. ODT contends that all of the men were hired on a temporary basis and that departmental efficiency should not be sacrificed to a red-tape regulation that was intended for Civil Service career employees.

Orders to be Modified

As part of the demobilization scheme ODT conservation orders will

(TURN TO PAGE 246, PLEASE)

RETURNING SOON!
THIS 2-SPEED, 7-INCH

SKILSANDER-POLISHER



Check this partial list of quality features and you'll see why SKILSANDER-POLISHER enjoyed such wide acceptance in service shops before the war . . . why you'll want one just as soon as they become available.

- 8 heavy duty ball bearings
- Extra capacity motor with balanced, vibrationless armature
- Accurately machined, heat treated, smooth-running gears
- Oversize cartridge type self-adjusting brushes

- Balanced ventilating fan that blows dust forward, away from the operator
- Dust-proof brush and commutator compartment
- Die-cast aluminum alloy body for extra strength and minimum weight.

Phone your SKITOOL Distributor today . . . tell him that you want to be one of the first to receive a SKILSANDER-POLISHER.

SKILSAW, INC.

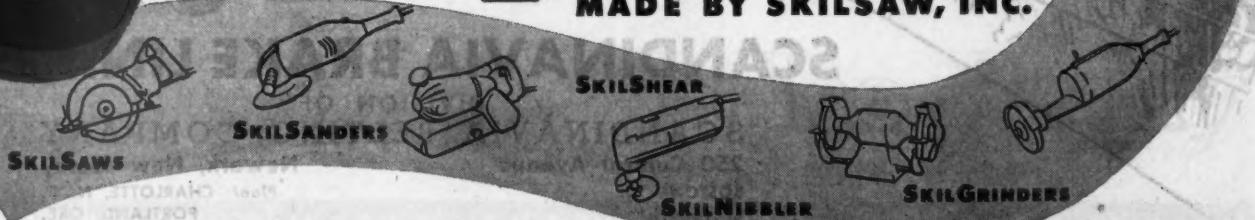
5033-43 Elston Ave., Chicago 30, Ill.

Factory Branches in All Principal Cities



PORtABLE ELECTRIC SKILTOOLS

MADE BY SKILSAW, INC.



(CONTINUED FROM PAGE 154)

Factory Appointments

T. Russell Paulsen, as manager of the new Atlanta office of the Ford Motor Co.; Chester R. Curtis, as assistant manager.

James Robert Jones, as salesman for Moog Industries, southeastern territory; and Claude Suttles, as district sales manager.

Harold Connor, as manager of the Bronx and White Plains branches in the territory of the Greater New York Division for Mack-International Motor Truck Corp.; John J. Byrne, as bus sales manager for the same territory.

B. M. Bruckner, Amarillo, Tex., as Federal truck distributor for the Texas Panhandle.

Frank Epstein, Piscataway, N. J., as Federal truck distributor for Somerset and Middlesex counties in New Jersey.

Middlesex counties in New Jersey.
John J. Gallagher, formerly sales manager for A. P. Parts Corp., Toledo, Ohio, as representative of Grafield brake linings in the Michigan and Ohio territory.

W. F. Balzerick, as Western Division manager, the Truckstell Co., Cleveland, Ohio.

Ohio.
R. M. Hollingshead, Jr., as chairman of the Board; Stewart Hollingshead, as president; and T. J. Bagley, as vice president. The R. M. Hollingshead Corp., Camden, N. J.

Medium and Light Reo Models Available for Essential Use

Reo truck and tractor models in medium weight (9000 to 15,990 GVW) and light-heavy weight (16,000 to 24,000 GVW) classifications are being produced under authorization of WPB for essential civilian service during 1945.

Many of these medium and light-heavy duty Reo units have already gone into commercial service and are being produced simultaneously with the great volume of Reo vehicles being built for all branches of the Armed Forces. They provide a wide range of wheel-bases, gear ratios, capacities and power ratings and are being released through Reo branches, distributors and dealers, as fast as they become available, to civilian operators holding ODT certificates of purchase.

Three Reo tractors are offered for trailer operation. Two of them, 25 VXS and 25 VBS, have the same tractor-trailer maxi-

mum gross rating of 40,000 lb. The third tractor model, 20 XHS, has a tractor-trailer maximum gross rating of 30,000 lb., a 130-in. wheelbase, and measures 69½ in. from cab to rear axle.

Other models include the 19 CHS and 19 BHS truck chassis, the 20 CHS and the 20 BHS.

20 BBS. A continued Reo feature is the More-Load design which provides added loading space per inch of wheelbase. It is also claimed that this feature secures better weight distribution, resulting in longer tire life, more effective braking power and easier riding. The More-Load design, coupled with Reo's wide front axle and special steering mechanism construction, is said to give an especially short turning circle, which is particularly advantageous for operation in congested areas.

(TURN TO PAGE 242, PLEASE)



Arthur E. Welch,
formerly secretary
and treasurer, has
been elected vice
president and trea-
surer, Aireon Mfg.
Co., Kansas City,
Mo.



Edward Gammie has been appointed general sales manager, Victor Mfg. & Gasket Co.



HERE'S WHERE "ALMOST RIGHT" WON'T DO!

A golf shot that calls for accurate control doesn't have to be much off line to wind up in trouble. The same thing holds true when it comes to controlling generator output in an automobile. If the regulator is a little off specification, plenty of trouble can result.

Use **Delco-Remy**
REGULATORS
To Protect Delco-Remy Electrical Systems

The regulator in a modern automobile is a small unit with a big job. Its assignment is to prevent generator output from exceeding a safe maximum, and to control output in accordance with the requirements of the connected electrical load and the condition of the battery.

To do this job satisfactorily, it must be right mechanically and electrically. The smallest deviation from specifications can cause improper operation, with such far-reaching results as generator burn-out, ruined battery, burned-out lights and radio tubes and burned distributor contacts.

DELCO-REMY—A UNITED MOTORS LINE
Delco-Remy service parts and service information are distributed by United Motors Service through independent automotive wholesalers.



Use Delco-Remy original-equipment regulators for replacement in all Delco-Remy-equipped cars. Delco-Remy regulators are available on a liberal exchange basis . . . and you know they're right: right in design, right in materials, right in accuracy of construction.

Safeguard
FLEET MAINTENANCE
with DELCO-REMY
ORIGINAL-EQUIPMENT PARTS

KEEP BUYING WAR BONDS

Delco-Remy
DIVISION, GENERAL MOTORS CORPORATION
ANDERSON, INDIANA

WHEREVER WHEELS TURN OR PROPELLERS SPIN



CHAMPION Safety TANKS

Mfg. by ALLIED
EQUIPMENT CO.
DETROIT

Distributed by The TRUCKSTELL Co. 1672 Union Commerce Bldg.
CLEVELAND

This popular tank, approved by Underwriters, is mounted on either side without drilling or welding. Has exclusive features as standard equipment. Available also are a Four-Way Multi-Selector Tank Valve and a Straddle Deck Plate carried on the tank mounting brackets.

WRITE FOR LITERATURE AND NAME OF YOUR TRUCKSTELL DISTRIBUTOR

SPEEDIER SERVICING



Jones Portable Tachometers make possible quicker check-ups with greater accuracy.

Used by the world's largest operators of commercial vehicles for checking engine speeds from crankshaft, generator, or other exposed rotating parts; trouble shooting without necessity of road tests. A wide variety of ranges—light weight and heavy duty; guaranteed calibration. Complete with 4" extension rod, convex and concave rubber tips, and steel tip, 12" circ. peripheral disc, and carrying case . . . \$80 FOB Stamford, Conn.

Users include Seaboard Freight Lines, Standard Oil Co. of La., N. Y., N. J., U. S. Army Air Forces, U. S. Navy, Socony Vacuum Oil Co., General Motors Truck and Coach, American Fire Apparatus, Autocar Co., Atlantic Refining Co., International Harvester Trucks, Mack Trucks.

JONES MOTROLA

438 Fairfield Ave. Stamford, Conn.

IMPERIAL Double-Flaring Tool

... for
steel
and other
metal
tubing



• Ideal for brake, gas and oil line work. Overcomes tendency of welded steel tubing to crack when flared with ordinary flaring tool. First, tubing is balled, Fig. 1. Then flared in conventional manner, Fig. 2.

No. 93-FB Double-Flaring Tool complete in metal kit. \$7.00



Order From Your Jobber

THE IMPERIAL BRASS MFG. CO.
1209 W. Harrison St., Chicago 7, Ill.

CCJ NEWSCAST

(CONTINUED FROM PAGE 240)

10,000 Workers Needed in Tire Plants

Nearly 10,000 workers are needed immediately to man idle machinery in war plants manufacturing tires and tire components, The Rubber Mfrs. Assn. reports.

Based on a nationwide study of the industry's manpower requirements, the figures show 5180 workers are needed in tire plants alone to help close the gap between production and heavy military and essential civilian demands.

An additional 4777 are needed in cotton cord and fabric, rayon cord, chafer fabric and reclaim rubber factories. Manpower shortages in the rubber manufacturing industry stand as the "principal factor limiting production of tires."

Roy D. Gates, General Sales Manager

Roy D. Gates has recently been promoted to general sales manager of the Blue Crown Spark Plug Co., Chicago, Ill. An erroneous report last month gave his title as assistant sales manager.

Information for June Article

The article, "Farm Products Delivery a \$150,000,000 Business," which appeared in the June issue of COMMERCIAL CAR JOURNAL used the general terms, "this association" and the "National League." These referred to the National League of Wholesale Fresh Fruit & Vegetable Distributors. The article was from an address by Harold D. Laidley, manager, Sales Development Department, The White Motor Co., before the 53rd Annual Convention of the above-mentioned organization.

(TURN TO PAGE 244, PLEASE)

Specify
Velvetouch
BINMETALLIC FRICTION MATERIAL
for
CLUTCHES AND BRAKES

THE S. K. WELLMAN CO.
CLEVELAND, OHIO

Is it Air YOU WANT?



—then write for
**FREE
COMPRESSOR
BOOKLET**

"More Profitable Service" . . . also ask for **FREE** Curtis Maintenance Check Chart.

CURTIS PNEUMATIC MACHINERY DIVISION

of Curtis Manufacturing Company
1970 Kienlen Avenue • St. Louis 20, Missouri

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Actually Cleanses Oil!
DELUXE
MORE THAN FILTERS Oil Filters
DE LUXE PRODUCTS CORP., LA PONTE, IND.

Gatke
CUSTOM-BILT
BRAKE LININGS
STOP'EM SAFELY
GATKE CORPORATION
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FRINK SNO-PLOWS

Both "V" TYPE and
ONE WAY BLADE TYPE
hand or power hydraulic control
FOR ALL MOTOR TRUCKS
FROM 1½ to 10 TONS

Write for catalog 38AC and 38BC with discount to truck dealers
CARL H. FRINK, Mfrs., CLAYTON, 1000 Ill., N. Y.
DAVENPORT-BESLER CORP., DAVENPORT, IOWA
FRINK SNO-PLOWS OF CAN. Ltd., TORONTO, ONT.

"We have been using
SCOTCH Wetordry Masking **TAPE**
 for many years and have found it
 to be the best at all times"



William Beckring of St. Louis, writes:
 "We have been using the "SCOTCH" Wetordry Masking Tape for many years and have found it to be best at all times; even through this war period it has maintained its high standard of quality and efficiency.

"We also find that it works just as well in the winter as it does in the summer and we surely hope that we may continue obtaining this superior tape in the future."

William Beckring.

Leading body shop operators have found that they can depend upon "SCOTCH" Wetordry Masking Tape day in and day out. They like its toughness, flexibility, "dead stretch." Its thin construction and correct adhesion give them cleaner, sharper color separation, fewer cleanup troubles and faster masking . . . You can enjoy those advantages in your shop by specifying "SCOTCH" brand whenever you order masking tape. So much "SCOTCH" Wetordry Masking Tape is needed for war production that your jobber may not always be able to fill your orders as promptly as he would like. You can be sure, however, that he is doing his best to supply you from the stock available.



"SCOTCH" is the trade mark for adhesive tapes made in the U.S.A. by Minnesota Mining & Mfg. Co.

IS THIS HAPPENING IN YOUR TRUCKS?



If you had MAGNETIC plugs in your trucks, instead of regular drain and fill plugs—

THIS is how the plugs would look when removed for oil or grease change.

The particles you see clinging to the magnet at the top of the plug are ABRASIVE METAL. The magnet has P-U-L-L-E-D these harmful metal particles out of the lubricant—held them, so they could not damage bearings, gears, and moving parts.

LONGER LIFE FOR TRUCK BEARINGS AND GEARS

Metal flakes off moving parts all the time, due to wear. If left in the lubricant, this metal grinds away, causes excessive wear, premature failure.

You can stop this by using Lisle MAGNETIC Plugs instead of ordinary drain and fill plugs. They cost little, retain their magnetism 10 years, come in all standard drain and fill plug sizes.

FREE TEST SAMPLE—Send today for literature, and Free Lisle Magnetic Plug to test in one of your trucks (just tell us the make and model). Tear out this ad and write today.

LISLE CORPORATION
 BOX 1017

Clarinda, Iowa



Lisle **Magnetic**
PLUGS

WHY WE RECOMMEND

THESE four steps insure built-in quality in TUTHILL Springs:

1. Material control based on analysis.
2. Heat treatment, pyrometer controlled.
3. Shot-blasting with latest equipment.
4. Inspection and test for uniformity.

We make both standard and special springs.
Specify your requirements.

TUTHILL SPRING CO.

TUTHILL

SPRINGS

760 W. POLK ST.
CHICAGO 7



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Here at Fulton we're in the war . . . in it to the limit of our ability and resources. Our manufacturing facilities are devoted whole-heartedly to the task of supporting the men on the firing line . . . until America's fighting leaders order us to quit.

So until Victory is won, Fulton quality-built war necessities will continue to have right-of-way over Fulton Automotive Equipment for the Home Front.

THE FULTON COMPANY

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Manufacturers of Electric Greet-Frost Shields, Defrosting and Ventilating Fans, Trailer Couplings, Tow-Bars, Steering Wheel Spinner Knobs and many other items.

Speed-up Schedules Cut-down Costs!



BUELL HIGH PRESSURE AIR HORNS
reduce maintenance costs by decreasing unnecessary stops, starts and slow downs. This also means less wear and tear on equipment with lower gas and oil consumption. Write for complete details now.

AIR COMPRESSORS

Powerful, reliable and economical in use, here is a precision built compressor that will give long service without frequent parts replacement. We specialize in the manufacture of small, high speed compressors of the highest quality. Write for literature.

BUELL MANUFACTURING CO.
2985 Cottage Grove Ave., Chicago 16



CCJ NEWSCAST

(CONTINUED FROM PAGE 242)

Heavy Duty Tire Shortage to Continue in Third Quarter

Heavy duty truck and bus tires will continue in tight supply despite some improvement in the availability of smaller sized commercial motor vehicle tires, Col. J. Monroe Johnson, director of the Office of Defense Transportation, said in releasing figures on truck and bus tires allocated to ODT for the third quarter of 1945.

As claimant agency for civilian transportation, the ODT requested 2,633,000 truck and bus tires for replacement purposes for the July, August and September period, the total including deficiencies for the first and second quarters. WPB allocated 1,863,155 or about 71 per cent of the amount requested. With the allocation of 71 per cent, the total deficiency for the first three quarters was 769,000 short of the estimated requirements.

The amount allocated will permit distribution of heavy duty tires in sizes 8:25 x 20 and larger and at the rate of 234,061 per month and the smaller sized truck and bus tires, sizes 7:50 and under, at the rate of 386,990 per month.

Although these totals compare favorably with the amounts available during the first and second quarters, Col. Johnson pointed out, that the increases reflect the greater need for tires during the summer months. He emphasized that the over-all increases will provide no easement in the availability of heavy duty tires in sizes 10:00 and larger. Eligible commercial motor vehicle operators using the smaller sized tires, 7:50 and under, should not find serious difficulty in obtaining replacements.



760 W. POLK ST.
CHICAGO 7

AIR-GO

100%
PETROLEUM
PRODUCTS

Reduces maintenance and operating costs . . . results in more engine power, more mileage per gallon, less wear and repair, freedom from carbon formation, sludge, etc. Add to any motor oil.

Aids in reducing gasoline and oil consumption, prevents corrosion, assures cleaner top motors, reduces metal wear and less. Helps eliminate sticky valves. Complete details on request.

ALLEGANY OIL CO. 216 NO. CLINTON ST. CHICAGO 6, ILL.

BETTER BODIES

• Build truck bodies of SUPERIOR GALVANNEALED. It's a highly rust-resistant, zinc-coated steel sheet that "takes" and "holds" fine finishes.



THE SUPERIOR SHEET STEEL CO.
CANTON, OHIO

See BLUE CROWN HEAVY-DUTY SPARK PLUG

AD IN THE NEXT ISSUE
OF THIS PUBLICATION!

BALDOR

BATTERY CHARGERS

Improved ventilation for cool operation, longer life and greater efficiency. They stand the strain of peak loads.

12-batt. size . . . \$28.00
less bulb



BALDOR
ELECTRIC CO.
4340 Duncan Ave.
St. Louis 10, Mo.



FITZGERALD BULLDOG GASKETS FOR HEAVY DUTY SERVICE



• Shock-proof, heat-resisting, extra tough — Fitzgerald Bulldog Gaskets are especially engineered to meet the most rigorous demands of modern heavy duty service.

Fitzgerald offers a complete service, including gaskets, oil and grease retainers of all approved types of construction, for every installation. Your jobber will give you prompt, efficient service . . . The Fitzgerald Manufacturing Company, Torrington, Connecticut — Branches, Chicago and Los Angeles — Canadian Fitzgerald Limited, Toronto, Ont.

FITZGERALD GASKETS

THE COMPLETE LINE THAT COMPLETELY SATISFIES



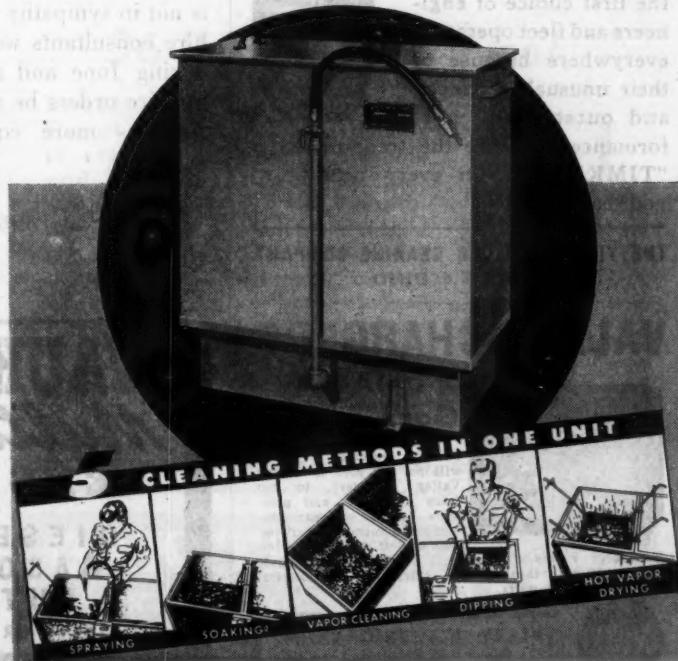
in Parts Cleaning that means Circo Chief Degreaser

Speed combined with thoroughness in parts cleaning means greater production, less man hours, less effort, lower costs, higher profits, and that's exactly what you get with the new Circo Chief twin tank degreaser. Circo Chief's time schedule is minutes instead of the usual hours wasted in cleaning parts, a savings in time alone that will pay for the unit. This remarkable parts cleaning degreaser cleans dirty, greasy parts five different ways—hot vapor cleaning (automatic), spraying (automatic), drying (automatic), soaking and dipping, choice of which depends upon condition of parts.

Circo Chief automatically hot vapor cleans and dries greasy parts in three minutes, and that means every nook and corner of all parts are thoroughly cleaned.

Anyone can operate a Circo Chief degreaser as it heats automatically, starts and stops automatically, and automatically feeds itself solvent for vapor degreasing and drying. The new modern Circo Chief degreaser sets a new pace in fast, thorough parts cleaning, producing big savings in man hours and material, and a profitable "pay-off" on every parts cleaning job. Economical to buy and to use. We would be glad to forward free literature on the Circo Chief degreaser, it's yours for the asking—write today.

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ON AUTOMOTIVE PARTS...

Your NAPA Jobber
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Timken Bearings are the first choice of engineers and fleet operators everywhere because of their unusual efficiency and outstanding performance. Be sure the trade-mark "TIMKEN" is on every bearing you buy!

THE TIMKEN ROLLER BEARING COMPANY
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For the duration . . . we will not be able to supply Valley Chargers to our many customers and prospects because our war production demands, otherwise take up our entire facilities . . . when we can again supply you with these simple, efficient and economical battery-charging units.



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DESIGNED ESPECIALLY
FOR HEAVY-DUTY FLEET WORK

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KINGSTON, N.Y.

COMPARISON PROVES

THAT

BOWMAN Bright Beam PLASTIC LENSES
are your best bet for
replacements for all,
round type, marker
lamps.

Because they are:
SHATTER PROOF •
FLEXIBLE • COLOR
FAST • WEATHER
PROOF • ECONOM-
ICAL.

Made in two colors—
red and amber. They
have glasslike trans-
parency.

6 sizes, 2 1/2 to 8 1/2.

Try this on
your present
lens — then try it on ours.
Contact your Jobber or write us direct.

BOWMAN AUTOMOTIVE PLASTICS COMPANY
4316 W. 192nd Street, Cleveland 16, Ohio



WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 174)

be modified from now on in line with changed and changing conditions. Director Guy Richardson told this department what he has told consultants and members of the industry: he is "against perpetuating absurdities." Section chiefs have been ordered to scan ODT orders and to recommend modifications. This is contrary to the attitude of some industry consultants and industry members who prefer to see the orders continued and do not want them either modified or revoked. One private operator group, said to represent the dairy industry, is reported to have approached ODT with the idea that some of the ODT regulations applying to them be made into law for the reconversion period. They are particularly concerned with continuation of limited wholesale and retail deliveries. ODT has no authority to recommend a law and besides is not in sympathy with the idea. For-hire consultants were in Washington during June and recommended that for-hire orders be retained until such time as more equipment becomes available.

(TURN TO PAGE 248, PLEASE)



VICTOR
GASKETS, OIL SEALS
GREASE RETAINERS

Dart Trucks

HEAVY DUTY FOR
OFF THE HIGHWAY SERVICE

—Specially Designed for—
Coal Mining—Iron Ore Mining—Copper
Mining—Pit and Quarry—Logging—Oil
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It Costs No More for Trucks Specially
Built to Fit Your Needs. Have Our Engi-
neers Visit and Analyze Your Operation.

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OVERSIZE REAR WHEEL

STUDS
for all
TRUCKS

Send for
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ALL LIQUID OR GASEOUS FUELS

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Spray-Painting Equipment — Spray
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Distributors or factory sales and service
representatives everywhere

THE DE VILBISS COMPANY
Toledo 1, Ohio



THE
CHAIN
 WITH THE
Saw-Tooth
GRIP!



Campbell Lug-Reinforced Tire Chains are radically different! The exclusive* saw-toothed lugs cut right into snow and ice for the grip that assures safe starts and stops without dangerous, rubber-chewing slip and skid. Tough, hard-wearing steel, and one-piece construction, mean increased chain mileage.

International Chain and Mfg.
 Company, York, Pennsylvania.



CAMPBELL
Lug-Reinforced
 TIRE CHAINS
 THE CHAIN WITH THE SAW-TOOTH GRIP



*U.S. PAT. NO. 2,093,547

*CANADIAN PAT. NO. 223,568

JULY, 1915

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 Wash Car and Truck Bodies
 with
More Speed... Greater Ease!

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Specialized CLEANING

MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT



EVERY GOOD TRACTOR OR TRUCK
DESERVES A *Snyder*
SAFETY TANK

- ADD SAFETY, CAPACITY, DURABILITY
- SUBTRACT FIRE HAZARD, OPERATING COST
- = ANSWER THE SNYDER SADDLE AND CYLINDER SAFETY TANKS, THE LAST WORD IN TRUCK AND TRACTOR FUEL TANK CONSTRUCTION

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KEEP YOUR
VEHICLES MOVING
ECONOMICALLY

with

HALL VALVE SERVICING
EQUIPMENT

Ask Your Jobber or write

THE HALL MFG. CO.
TOLEDO, OHIO

ANY MOTOR TRANSPORT
HEATING PROBLEMS?

Consult our Engineers

HUNTER AND COMPANY
1560 East 17th Street,
CLEVELAND 14, OHIO

WASHINGTON
RUNAROUND

(CONTINUED FROM PAGE 246)

Truck & Trailer Production

ODT's share of truck production for the first five months of this year was 66,478 trucks. This was 9923 trucks short of the program. Production for civilians was as follows: 11,100 light, 42,651 medium, 10,555 light-heavy and 2172 heavy-heavy trucks. Trailer production for civilians in the same period was approximately 12,000, including a carry-over from the 1944 program of 3972 units.

Big Tire Boost in July

July truck tire quotas were given a sizable boost over the June quotas. In July 234,308 tires in sizes 8.25 and up will become available to civilian truck operators, compared with 164,000 in June. Smaller truck sizes total 386,862 in July, compared with 361,000 in June. Arithmetically the August and September quotas should be as good as July. However, rubber production is going badly due to strikes and Washington circles fear that September quotas may be lower because of this.

END

(Please resume your reading on p. 36)



KINNEAR ROLLING DOORS



For truck bodies as well as buildings. Rugged, dependable. Steel slat curtain coils up quickly, out of the way. Built any size. Motor operation, if desired. Write for details.

The Kinnear Mfg. Co.
2100-20 Fields Ave.
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HEAVY-DUTY Clutches
Insure Maximum ClutchLife

- ★ 20 ball-hinged levers for uniform pressure, smooth engagements, easy disengagements.
- ★ Parallel disc contact. ★ No localized burning. ★ Long facing life.
- ★ Warp-resisting pressure plate.
- ★ Rigid cast iron construction. ★ Forced internal air cooling.

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CLEANER OIL

MEANS

- Longer Engine Life
- Lower Oil Expense

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MICHIANA PRODUCTS CORP.
Michigan City, Indiana

**MICHIANA
OIL FILTERS**

WHEN THE LIGHTS GO ON AGAIN

MOHAWK
QUALITY

will be Remembered

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